

CHIGO

Service mannal

Room airconditioner

Split Wall-Mounted Type



NOTE:

Before servicing the unit, please first read the service manual and then contact with your service center if meet problem

Table of Contents

1、Summary3

2、Model explaining4

3、Installation.....4

4、Exploded view and part list.....8

5、Operation principle.....8

6、Parameter.....9

7、Wiring diagrams.....13

8、PCB principle chart.....17

9、PCB function17

10、Troubleshooting.....30

1. Summary

1.1 indoor unit



Model 38B



model 85

1.2 outdoor unit



9000BTU



12000~18000 BTU



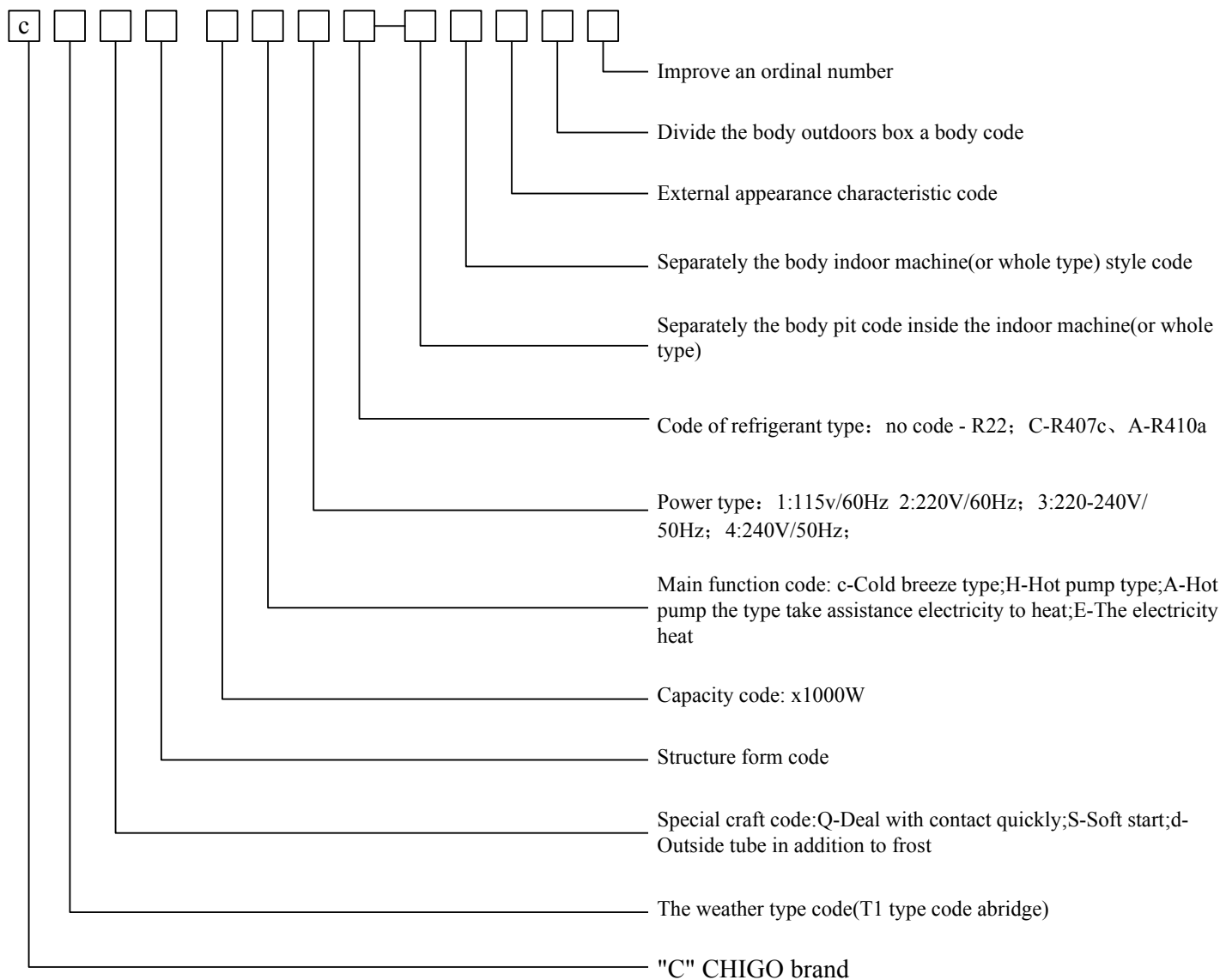
22000 BTU



24000~26000 BTU

model		KFR-25GW/AGX1c (38B)	KFR-35GW/AGX1c (38B)	KFR-51GW/BGX1c (38B)	CS-70H3A-T38AS
Net Dimension	indoor unit	790×270×180	790×270×180	940×270×180	1080×335×245
	outdoor unit	700×225×500	795×255×510	795×255×510	870×310×700
model		CS-25C3A-V85AY1	CS-35H3A-M85AH4	CS-51H3A-P85AH4A	CS-61H3A-P85AE2
Net Dimension	indoor unit	745×250×195	800×280×190	900×292×215	900×292×215
	outdoor unit	795×255×500	795×255×510	795×255×510	850×285×605
model		KFR-70GW/X1c (S85A)			
Net Dimension	indoor unit	1080×335×245			
	outdoor unit	870×310×700			

2、Model explaining



Such as: CS-25C3A-V85AY1

T1 climate type, wall split type air conditioner, cooling capacity is 2500W, power is 220V~/50Hz/1PH, refrigeration is R410A, the kernel of indoor unit is fresh 98, the pattern no. is 85, first time design, outdoor unit is 1HP of 2003 year.

Indoor unit model is: CS-25C3A-V85A, outdoor unit model is: CS-25C3A-Y1.

3. Attention of installation

3.1 Safety Precaution

- To prevent injury to the user or other people and property damage, the following instructions must be followed.
- Incorrect operation due to ignoring instruction will cause harm or damage.
- Before service unit, be sure to read this service manual at first.

3.2 Warning

> Installation

- Do not use a defective or underrated circuit breaker. Use this appliance on a dedicated circuit.

- There is risk of fire or electric shock.
- For electrical work, contact the dealer, seller, a qualified electrician, or an Authorized service center.
Do not disassemble or repair the product, there is risk of fire or electric shock.
 - Always ground the product.
There is risk of fire or electric shock.
 - Install the panel and the cover of control box securely.
There is risk of fire or electric shock.
 - Always install a dedicated circuit and breaker.
Improper wiring or installation may cause fire or electric shock.
 - Use the correctly rated breaker or fuse.
There is risk of fire or electric shock.
 - Do not modify or extend the power cable.
There is risk of fire or electric shock.
 - Do not install, remove, or reinstall the unit by yourself (customer).
There is risk of fire, electric shock, explosion, or injury.
 - Be caution when unpacking and installing the product.
Sharp edges could cause injury, be especially careful of the case edges and the fins on the condenser and evaporator.
 - For installation, always contact the dealer or an Authorized service center.
There is risk of fire, electric shock, explosion, or injury.
 - Do not install the product on a defective installation stand.
It may cause injury, accident, or damage to the product.
 - Be sure the installation area does not deteriorate with age.
If the base collapses, the air conditioner could fall with it, causing property damage, product failure, and personal injury.
 - Do not let the air conditioner run for a long time when the humidity is very high and a door or a windows is left open.
Moisture may condense and wet or damage furniture.
 - Take care to ensure that power cable could not be pulled out or damaged during operation.
There is risk of fire or electric shock.
 - Do not place anything on the power cable.
There is risk of fire or electric shock.
 - Do not plug or unplug the power supply plug during operation.
There is risk of fire or electric shock.
 - Do not touch (operation) the product with wet hands.
There is risk of fire or electric shock.
 - Do not place a heater or other appliance near the power cable.
There is risk of fire and electric shock.
 - Do not allow water to run into electric parts.
It may cause fire, failure of the product, or electric shock.
 - Do not store or use flammable gas or combustible near the product.
There is risk of fire or failure of product.
 - Do not use the product in a tightly closed space for a long time.
Oxygen deficiency could occur.
 - When flammable gas leaks, turn off the gas and open a window for ventilation before turn the product on.
Do not use the telephone or turn switches on or off. There is risk of explosion or fire.
 - If strange sounds, or small or smoke comes from product. Turn the breaker off or disconnect the power supply cable.
There is risk of electric shock or fire.
 - Stop operation and close the window in storm or hurricane. If possible, remove the product from the window before the hurricane arrives.
There is risk of property damage, failure of product, or electric shock.

■ Do not open the inlet grill of the product during operation. (Do not touch the electrostatic filter, if the unit is so equipped.)

There is risk of physical injury, electric shock, or product failure.

■ When the product is soaked (flooded or submerged), contact an Authorized service center.

There is risk of fire or electric shock.

■ Be caution that water could not enter the product.

There is risk of fire, electric shock, or product damage.

■ Ventilate the product from time to time when operating it together with a stove, etc.

There is risk of fire or electric shock.

■ Turn the main power off when cleaning or maintaining the product.

There is risk of electric shock.

■ When the product is not be used for a long time, disconnect the power supply plug or turn off the breaker.

There is risk of product damage or failure, or unintended operation.

■ Take care to ensure that nobody could step on or fall onto the outdoor unit.

This could result in personal injury and product damage.

> CAUTION

■ Always check for gas (refrigerant) leakage after installation or repair of product.

Low refrigerant levels may cause failure of product.

■ Install the drain hose to ensure that water is drained away properly.

A bad connection may cause water leakage.

■ Keep level even when installing the product.

To avoid vibration of water leakage.

■ Do not install the product where the noise or hot air from the outdoor unit could damage the neighborhoods.

It may cause a problem for your neighbors.

■ Use two or more people to lift and transport the product.

Avoid personal injury.

■ Do not install the product where it will be exposed to sea wind (salt spray) directly.

It may cause corrosion on the product. Corrosion, particularly on the condenser and evaporator fins, could cause product malfunction or inefficient operation.

> Operational

■ Do not expose the skin directly to cool air for long periods of time. (Do not sit in the draft).

This could harm to your health.

■ Do not use the product for special purposes, such as preserving foods, works of art, etc. It is a consumer air conditioner, not a precision refrigerant system.

There is risk of damage or loss of property.

■ Do not block the inlet or outlet of air flow.

It may cause product failure.

■ Use a soft cloth to clean. Do not use harsh detergents, solvents, etc.

There is risk of fire, electric shock, or damage to the plastic parts of the product.

■ Do not touch the metal parts of the product when removing the air filter. They are very sharp.

There is risk of personal injury.

■ Do not step on or put anything on the product. (outdoor units)

There is risk of personal injury and failure of product.

■ Always insert the filter securely. Clean the filter every two weeks or more often if necessary.

A dirty filter reduces the efficiency of the air conditioner and could cause product malfunction or damage.

■ Do not insert hands or other object through air inlet or outlet while the product is operated.

There are sharp and moving parts that could cause personal injury.

- Do not drink the water drained from the product.
It is not sanitary could cause serious health issues.
- Use a firm stool or ladder when cleaning or maintaining the product.
Be careful and avoid personal injury.
- Replace the all batteries in the remote control with new ones of the same type. Do not mix old and new batteries or different types of batteries.
There is risk of fire or explosion.
- Do not recharge or disassemble the batteries. Do not dispose of batteries in a fire.
They may burn or explode.
- If the liquid from the batteries gets onto your skin or clothes, wash it well with clean water. Do not use the remote of the batteries have leaked.
The chemical in batteries could cause burns or other health hazards.

3.3 Installation details

- Wrench torque sheet for installation

Outside diameter		Torque
mm	inch	Kg.m
φ6.35	1/4	1.8
φ9.52	3/8	4.2
φ12.7	1/2	5.5
φ15.88	5/8	6.6
φ19.05	3/4	6.6

■ Connecting the cables

The power cord of connect should be selected according to the following specifications sheet.

	Grade					
Unit	7K	9K	12K	18K	24K	28K
mm ²	1.0	1.0	1.5	2.5	2.5	2.5

■ Pipe length and the elevation

Capacity	Pipe size		Standard length	Max.	Max.	Additional
			(m)	Elevation	Elevation	refrigerant
Btu/h	GAS	LIQUID		B (m)	A (m)	(g/m)
9K-12K	3/8" (φ9.52)	1/4" (φ6.35)	3.5	5	10	30
18K-22K	1/2" (φ12.7)	1/4" (φ6.35)	4	10	15	30
24K-28K	5/8" (φ15.88)	3/8" (φ9.52)	5	15	20	65

Foreword

Air conditioners are units that should have the professional technicians do the installation for you.

This Instruction Guide is the universal-purpose version for the models of split wall-mounted air conditioners manufactured by our Co. The appearance of the units that you purchase might be slightly different from the ones described in the Guide, but it does not affect your proper operations and usage.

Please read carefully the sections corresponding to the specific model you choose, and keep the Guide properly so as to facilitate your reference at later time.

CONTENTS

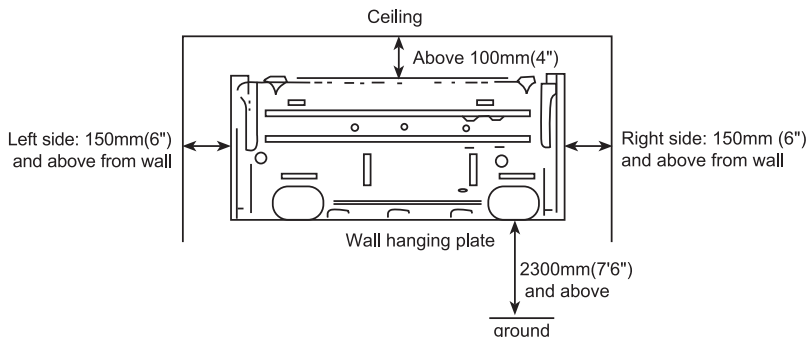
Selection of installation positions for indoor unit	1
Selection of installation positions for outdoor unit	2
Installation fixture of indoor unit	3
Installation fixture of outdoor unit	4
Ordinary pipelines connection & Air purging	4
Pipelines connection for Split type quick coupler model	6
Pipelines connection for Whole-Unit type quick coupler model	7
Connection of power cable	8
Finishing touches and test running	8
Is the unit installed correctly?	9
Self diagnosis functions	10
Quick connector installation instruction	11
Installation Guide	12

【Selection of installation positions for indoor unit】

- To be installed at the position where the air delivered from the unit can reach every corner of the room;
- To avoid being affected by the outdoor air;
- To avoid blockage to the air inlet or outlet of the unit;
- To avoid too much oil smoke or steam;
- To avoid possible generation, inflow, lingering or leakage of flammable gases;
- To avoid high-frequency facilities (such as high frequency arc welders, etc.);
- To avoid the places where acid solutions are frequently used;
- To avoid the places where some special sprayers (sulfides) are frequently used.
- Not to install on top of the musical instruments, TV, computer etc. valuable appliance.
- Not to install a fire alarming device near the air outlet of the unit (during operation, the fire alarm device might be erroneously triggered by the warm air from the unit);

■ Make sure of enough space for installation and maintenance.

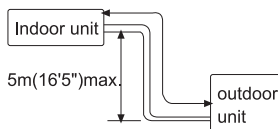
- To take into consideration the operational convenience and safety in installation, it is recommended to ensure enough space between the unit and the walls.



Attention: If there are some additional function devices to install on the air conditioner, Be sure add to the installation space for the function devices.

■ Height limits of indoor and outdoor units.

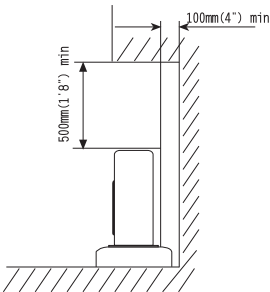
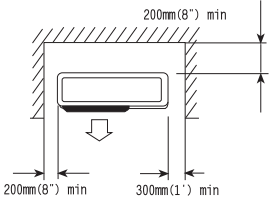
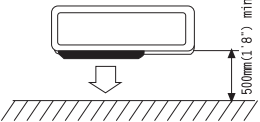
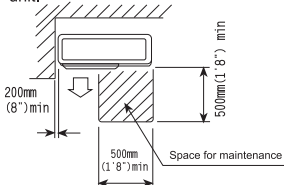
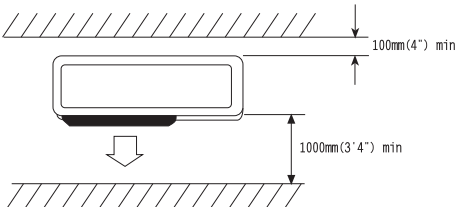
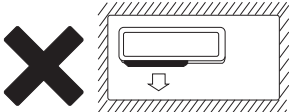
- Either the indoor unit or the outdoor unit can be higher, but the height difference must comply the stated requirements.
- Try to reduce the bending of the piping line as much as possible so as to avoid possible negative impacts upon the performances of the units.



【Selection of installation positions for outdoor unit】

- To install the outdoor unit at the places which can stand the load of the machine weight and will not cause big vibrations and noises;
- To install the unit at the places not to be exposed to rain or direct sunshine, and the places with good ventilation;
- The noises generated from the unit will not affect the neighboring places;
- Do not install the unit on non-metal frame;
- Not to install the unit at the places where there might occur the generation, inflow, stay or leakage of inflammable gases;
- Pay attention to the drainage of the condensed water from the base plate during operations;
- To avoid the air outlet being directly against the wind.

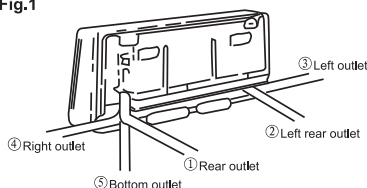
Detailed space requirements around the outdoor unit

<p>1. When there are obstacles above the unit</p> 	<p>2. When the front (air outlet) is open</p> 	<p>3. When there are obstacles only in the front (air outlet)</p>  <p>Space for maintenance Shown as in the following figure. Keep the maintenance space in front of the unit.</p> 
<p>4. When there are obstacles at the front and rear sides.</p> 		<p>5. When there are obstacles all around the unit on four sides. Although the top side is open, the installation is not to be done if there are obstacles all around.</p>  <p>● At least two sides should be kept open.</p>

【Installation fixture of indoor unit】

Pipelines can be connected in the directions of ①、②、③、④、and ⑤ as indicated in Fig.1. When the pipelines are connected to the directions of ③、④ and ⑤, a groove for the pipes has to be opened at the proper place on the base stand.

Fig.1



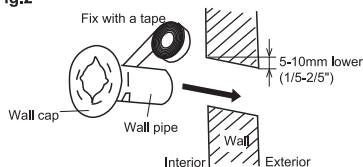
1.Installation of wall-mounting plate

Fix the wall-mounting plate firmly on the wall with screws. Make sure of the leveling of the plate. Slanted wall-mounting plate might jeopardize the smooth discharge of the condensed water.

2.Drill holes on the wall

Drill holes at places slightly below the wall-mounting plate, with hole diameter of 65mm(2-3/5") and the outer edge of the hole 5-10mm(1/5-2/5") lower (Fig.2) so that the condensed water can smoothly flow out. Cut the wall penetrating pipe to proper length according to the thickness of the wall (3-5mm(1/10-1/5") longer than the wall thickness) and insert the pipe as indicated in Fig.2.

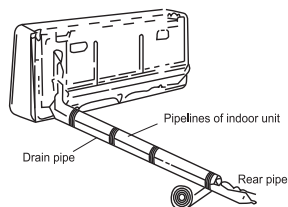
Fig.2



3.Installation of drain pipe

Install the pipelines of the indoor unit in accordance with the direction of the wall holes. Wrap tightly the drain pipe and the pipelines with tape. Make sure that the drain pipe is underneath the pipelines. (Fig.3) (When the drain pipe passes the room interior, some condensed water might occur to its surfaces if the humidity is very high).

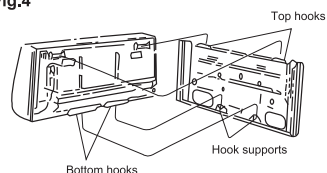
Fig.3



4.Installation of indoor unit

Pass the connection wires, connecting pipelines and drain pipe through the wall hole. Hang the indoor unit on the hooks at the top of the wall-mounting plate so that the hooks at the bottom of the indoor unit match the hooks of the wall-mounting plate. (Fig.4)

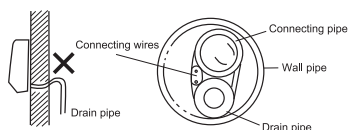
Fig.4



Inspections:

- Check if the hooks at the top and bottom are firmly fixed.
- Check if the position of the master unit is properly leveled.
- The drain pipe should not curve upward (Fig.5).
- The drain pipe should be at the lower part of the wall pipes (Fig. 5).

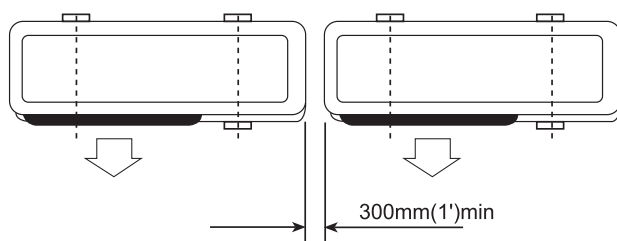
Fig.5



【Installation fixture of outdoor unit】

- Try to ship the product to the installation location in its original package;
- As the gravity center of the unit is not at the installation center, special caution should be taken when using hoisting cables to lift it up;
- During shipping, the outdoor unit must not be slanted to over 45 degrees (Do not store the unit in a horizontal way).
- Use expansion bolts to fix the mounting supports on the wall;
- Use bolts and nuts to fix the outdoor unit firmly on the supports and keep on the same level;
- If the unit is installed on the wall or at the rooftop, the supports have to be firmly fixed so as to resist earthquake or strong wind.

Dimensions for parallel units installations



【Ordinary pipelines connection & Air purging】

- The following ordinary pipelines connection and air purging procedures are just suitable for non-quick coupler model.

■ Ordinary pipelines connection

No dust ,foreign articles,air or moisture should be allowed to enter the air conditioning system.Careful attention should be paid when pipeline connection for outdoor unit is made.Try to avoid repeated curves as much as possible,otherwise hardening or cracks might be caused to the copper pipes. Suitable wrenches should be used when the pipeline connection is done so as to ensure appropriate torque(refer to following torque Table 1).Excessive torque might damage the joints while too little torque might lead to leakage.

Table 1 Torque based upon the wrench to be used

Outer diameter of copper pipe	Tightening torque	Strengthened tightening torque
Ø 6.35(1/4")	160kgf.cm(63kgf.inch)	200kgf.cm(79kgf.inch)
Ø 9.52(3/8")	300kgf.cm(118kgf.inch)	350kgf.cm(138kgf.inch)
Ø 12.7(1/2")	500kgf.cm(197kgf.inch)	550kgf.cm(216kgf.inch)
Ø 15.88(5/8")	750kgf.cm(295kgf.inch)	800kgf.cm(315kgf.inch)
Ø 19.05(3/4")	1200kgf.cm(472kgf.inch)	1400kgf.cm(551kgf.inch)

■ Air purging with vacuum pump

1.Check that pipelines connection have been properly connected,remove the charging port cap,and connect the manifold gauge and the vacuum pump to the charging valve by service hoses as shown Fig.6.

2.Open the valve of the low pressure side of manifold gauge,then,run the vacuum pump.Vacuum the indoor unit and the connecting pipes until the pressure in them lowers to below 1.5mmHG(The operation time for vacuuming is about 10 minutes).When the desired vacuum is reached,close the valve of the low pressure of the manifold and stop the vacuum pump.

3.Disconnect the service hoses and fit the cap to the charging valve.

4.Remove the blank caps,and fully open the spindles of the 2-way and 3-ways valves with a service valve wrench.

5.Tighten the blank caps of the 2-way and 3-ways valves,applying the above torque Table 1.

■ Adding refrigerant

Refrigerant must be added if the piping measures more than 5 metres(16'5") in length.This operation can only be performed by a professional technician,for the additional amount,see the table 2 below.

Table 2

Additional refrigerant amount	
Liquid pipe diameter Ø6.35(1/4")	Liquid pipe diameter:Ø9.52(3/8")
(piping length-5)m×30g or (piping length-16)ft×0.3oz	(piping length-5)m×65g or (piping length-16)ft×0.7oz

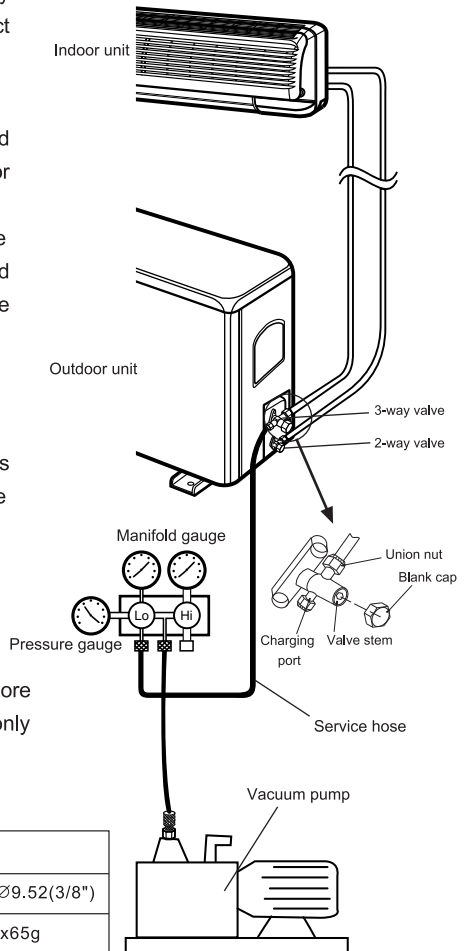


Fig.6

■ Gas leakage inspection

After the pipeline connection is done, use a leakage inspection device or soap suds to carefully check if there is any leakage at the joints. This is an important step to ensure the quality of installation. Once a leakage is detected, proper treatment should be taken immediately.

【Pipelines connection for Split type quick coupler model】

● If you purchase the machine for split type quick coupler model, please adopt the following pipelines connection procedures:

1. Remove the dust caps from the indoor and outdoor units, and the connecting pipe.

2. Align the joint counter of connecting pipe with the proper indoor and outdoor joint conic surfaces, tighten the connecting nut manually. Then, make it secure with a wrench as shown Fig.7, applying to above torque Table 1.

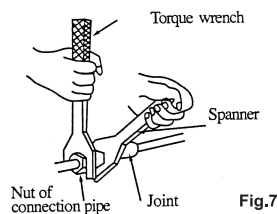


Fig.7

3. Remove the two valve core caps from the outdoor unit.

4. Turn on the high and low pressure valve cores with an socket wrench, then tighten the two valve core caps of the outdoor unit (Fig.8).

5. Finally, wrap the hot insulating cotton around the joints of indoor and outdoor units.

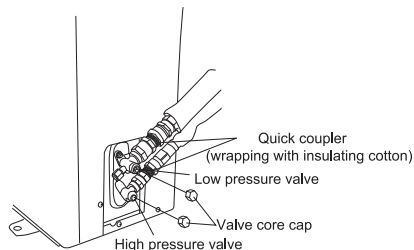


Fig.8

● Notes on installation of quick coupler:

1. Connecting pipe bending minimum radius parameters (Table 3)

2. Quick coupler assembly and disassembly limit: the assembly and disassembly times are inadvisably more than 7.

Table 3 Minimum bending radius

Normal diameter(mm)	Minimum bending radius(mm)	cooling capacity
DN8(5/16")	80(3")	2100~2300W (7000~8000BTU)
DN10-12 (1/2")	100(4")	2500~5100W (9000~18000BTU)
DN14-16 (5/8")	150(6")	6100~7000W (22000~24000BTU)

【Pipelines connection for Whole-Unit type quick coupler model】

● If you purchase the machine for Whole-Unit type quick coupler model, please adopt the following pipelines connection procedures:

STEP 1

● Remove two screws on the maintenance plate with a screwdriver and take off the plate, then remove the dust caps on both indoor male coupler and outdoor female coupler, See Fig.9.

STEP 2

● Press the projecting section of outdoor female coupler backward with a little force by the thumb to make inner hooks open, and then you can easily take out the outdoor valve for gas leaking by the other hand, See Fig.10.

STEP 3

● In the same way, press the projecting section backward, then connect the indoor male coupler to the outdoor female coupler, See Fig.11.

STEP 4

● Close the key lever of indoor male coupler to the horizontal position, then indoor and outdoor refrigerant will be circulating, and now you can obviously hear the sound of inner air flowing, See Fig.12.

STEP 5

● Connect the outdoor quick cable coupler with indoor quick cable coupler, See Fig.13.

STEP 6

● Finally, Re-install the maintenance plate back into its place, See Fig.14.

As for the outdoor valve for gas leaking and the dust caps, you can preserve them for future possible use on the removal of your air conditioner.

Fig.9

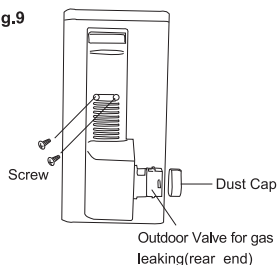


Fig.10

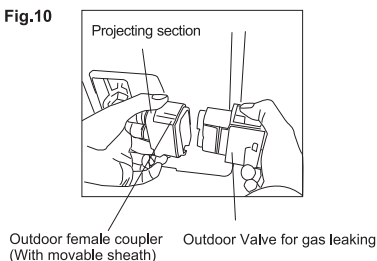


Fig.11

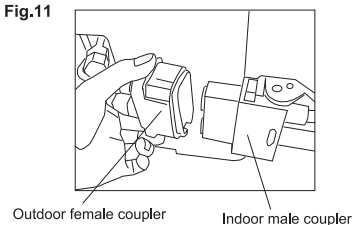


Fig.12

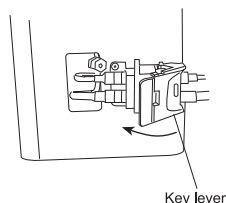
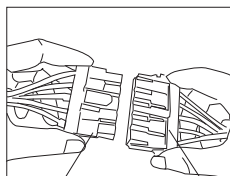


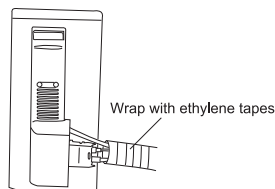
Fig.13



Outdoor quick cable coupler

Indoor quick cable coupler

Fig.14



【Connection of power cable】

- 1.Remove the drawer of the outdoor unit.
- 2.**Non-quick coupler:**connect the indoor power and control wires with the matched outdoor wires in accordance with the electric schematic diagram and make sure that the connection is firmly done(Fig.15.)

Quick coupler:directly connect quick cable couplers with indoor and outdoor quick cable couplers after disassembly of the outdoor unit connecting box cover(Fig.16.)

- 3.Use a press plate to fix the wires firmly,and re-install the drawer.

- 4.Optional steps:In some cooling and heating models,you should connect the indoor wire connector with outdoor probe wire connector for defrosting,see Fig.17.

Fig.15

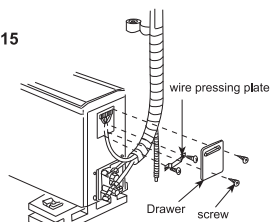


Fig.16

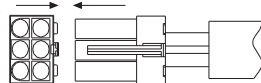
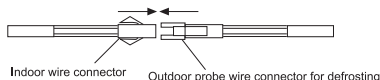


Fig.17



Note:Do not connect the wires in a wrong way,otherwise electric malfunctions will be caused and even damages to the units will occur.The appliance shall be installed in accordance with national wiring regulation.If the supply cord is damaged,it must be replaced by the manufacturer or its service agent or a similarly qualified person in order to avoid a hazard.The plug shall be accessible after installing the appliance.If the model have not plug that a switch which have a contact separation of at least 3 mm in all poles shall be added in fixed wiring.

【Finishing touches】

- wrap the pipelines tightly with ethylene tapes.
- Fix the wrapped pipelines on the exterior wall with clamps.
- Fill in the gaps left over by the pipeline hole and wall hole to prevent rain-water from entering.

【Test running】

- Connect to the power source,check if the function selection keys on the remote controller are working properly.
- Check if the room temperature adjustments and timer settings are working properly.
- Check if the drain is smooth.
- Check if there is any abnormal noise or vibration during operation.
- Check if there is leakage of refrigerant.

【Is the unit installed correctly?】

■ Suitable Installation Position

- Isn't there anything which prevents ventilation or obstructs operation in front of the indoor unit ?
Do not install the unit following place .
 - Inflammable gases may leak .
 - Oil splashes a lot .
 - In case where the unit is used in such places as poisonous or sultry gases are generated or seaside district exposed to sea breezes corrosion may cause malfunction . Consult with your distributor .
 - Air conditioner body and remote controller must be 1 m(39-3/4") or more away from a TV or a radio.
- Drain the dehumidified water from the indoor unit to a place which drains well .

■ Pay attention to operation noise

- When installing the unit , choose a place which can stand the weight of the unit well and does not increase the operation noise or vibration . Especially where there is a possibility that vibration be transmitted to the house , fix the unit by inserting attached vibration -proof pads between the unit and fittings .
- Choose the place where hot air and operation noise from the outlet of the outdoor unit do not annoy the neighborhood .
- Things left near the outlet and inlet of the outdoor unit cause malfunction or increased operation noise . Do not leave obstacles near the outlet and inlet .
- If irregular sound is heard during operation , consult with your distributor .

■ Inspection and Maintenance

- According to the service conditions and operating environment , the inside of the air conditioner will become dirty after several seasons (3 to 5years) of service , resulting in decreased operating performance .Inspection and maintenance are recommended in addition to usual cleaning (The air conditioner can be used for a longer period and without anxiety .)
- As to inspection and maintenance , consult your dealer or any one of business offices of dealing companies .(Service charge is required in this case .)
- We recommend to perform inspection and maintenance during an off seasons.

【Self Diagnosis Functions】

Our company provides the thoughtful services for customer,air conditioners had been installed self diagnosis system to display the information for the units.

<i>Self-check information</i>	<i>Self-check code of luminotron/ (Self-check code of running lamp)</i>	<i>Digital self-check code/ (Polychrome screen self-check code)</i>
Hint to defrosting	Flicker 1 time/1s	Indicates "dF"or defrosting indicator displays
Hint to defense against cold wind	Flicker 1 time/3s	Fan motor picture not running
Failure of room temperature sensor	Flicker 2 times/4s (Flicker 2 times/8s)	E2/(L2)
Failure of coiled pipe sensor	Flicker 3 times/5s (Flicker 1 time/8s)	E3/(L1)
Abnormality of outdoor unit	Flicker 4 times/6s (luminating)	E4/(E5)
Without feedback of internal fan motor	Flicker 5 times/7s (Flicker 6 times/8s)	E5/(L6)
Zero crossing signal without current	Flicker 6 times/8s	E6
External feedback failure	Flicker 7 times/9s	E7
Overheat protection	Flicker 8 times/10s	E8
Water pump failure	Flicker 9 times/11s	E9

Note:Above self check information is commonly applicable in our most air conditioners,but some are special,you can refer to the User's Manual for information or contact the dealer or authorized maintenance people for help.





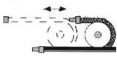
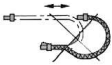




【Quick connector installation instruction】

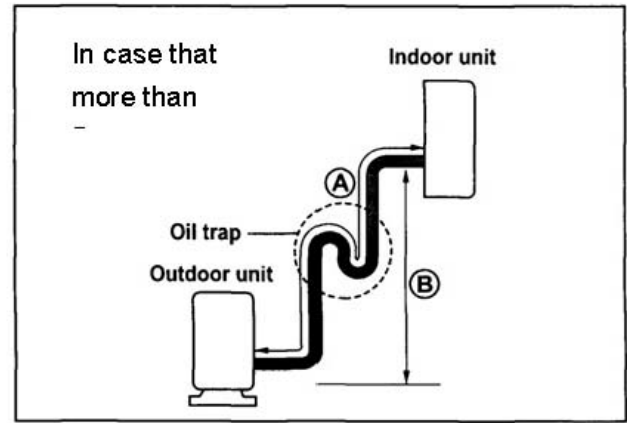
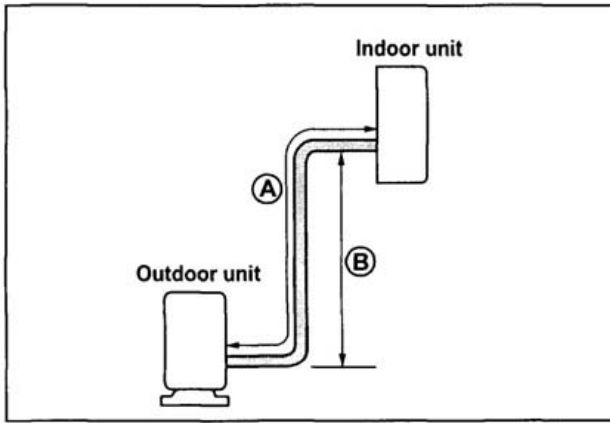
This sheet only guides the requirements of the installation for stainless quick connector pipe. Other installation requirements please refer to the installation guide along with the unit.

- To expand the connecting pipe, please hold one side then expand it following the right direction.
- Please insure the angles have a radian at some extent while intalling the stainless soft pipe. Angels need to be around, not bended, (to the quick connecting spot and drilled point of wall.
- Please fix the stainless soft pipe while installing because the connecting pipes are soft, so that prevent them from getting bended or stretched.
- The minimum bending radius are as follows:

<i>Stainless soft pipe</i>	<i>Model</i>	<i>Minimum bending radius(mm)</i>
Φ <i>Eight</i>	Twenty-one, Twenty-five	Eighty(mm)
Φ <i>Ten</i>	Thirty-five	One hundred(mm)
Φ <i>Thirteen</i>	fifty-one	One hundred and fifteen(mm)

【Installation Guide】

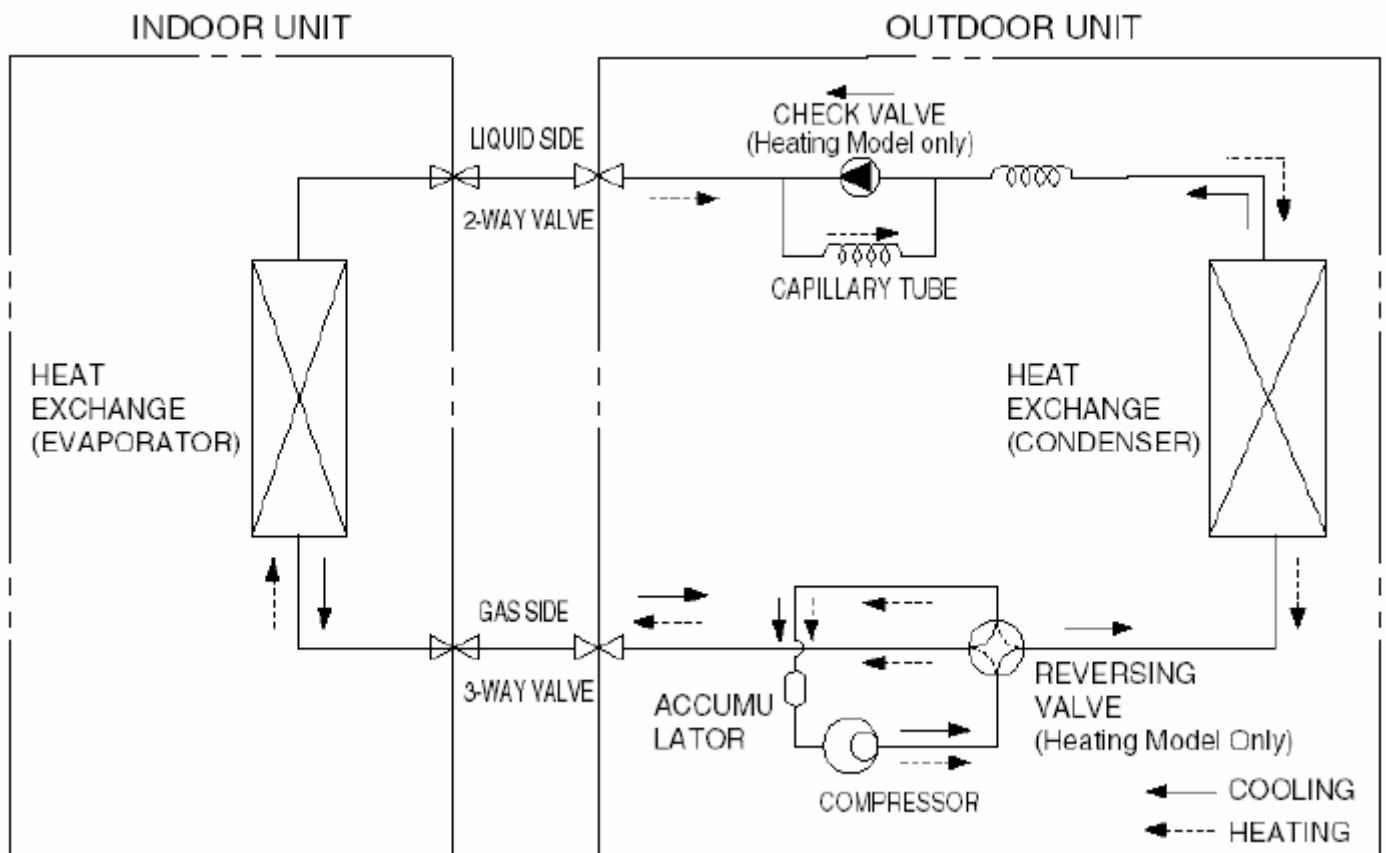
<p>To keep the allowed bending radius, please make the packed soft pipes vertical for expanding.</p>			<p>Please do not expand only one side of the packed soft pipes.</p>
<p>Please make use of semicircle pulley to keep the allowed bending radius.</p>			<p>Extremely bending could damage the pipes.</p>
<p>Please use twisting wheel to avoid improper bending.</p>			<p>Over length soft pipes will lead to irregular bending.</p>
<p>Please use rigid elbow to keep the bending radius while soft pipes operating.</p>			<p>Undersize bending will damage the soft pipe.</p>
<p>Please Keep the minimum bending radius while installing.</p>			<p>Short soft pipes will have them bending undersize, it's not allowed.</p>



Caution: Capacity is base on standard length and maximum allowance length is base of reliability. Oil trap should be install per 5-7 meters.

4、 Indoor unit and outdoor unit explosion diagram and spare parts list(see explosion diagram file)

5. Refrigerant cycle diagram (working principle)



6. Parameter

Table 6-1

Model			KFR-25GW/AGX1c	KFR-35GW/AGX1c	KFR-51GW/BGX1c	KFR-70GW/X1c
Power supply		Ph-V-Hz	220-240/50	220-240/50	220-240/50	220-240/50
Cooling	Capacity	W	2600/2780	3433/3590	5100	7000
	Input	W	928/865	1183/1120	1590	2300
	Rated current	A	4. 1/4. 0	5. 2/5. 1	6. 8	10. 3
	EER	w/w.	2. 8/3. 2	2. 90/3. 2	3. 21	3. 043478261
Heating	Capacity	w	2700/2780	3414/3680	5200	7500
	Input	W	812/770	1076/1020	1600	2330
	Rated current	A	3. 6/3. 5	4. 8/4. 7	6. 9	10. 4
	COP	w/w	3. 30/3. 61	3. 17/3. 6	3. 25	3. 21888412
Max. input consumption		W	1250	2170	2300	3600
Max. current		A	7	10. 6	12. 3	19. 5
Compressor	Model		PA108X1C-4DZDE	PA140X2C-4FT	PA200X2CS-4KU1	PA270X3CS-4MU2
	Type		ROTAING	ROTAING	ROTAING	ROTAING
	Brand		TSHIBA	TSHIBA	TSHIBA	TSHIBA
	Capacity	W	2570	3365	4890	6650
	Input	W	885±5%	1160±5%	1715	2270
	Start electric current	A	21. 7±10%		31. 83	10. 32
	Rated current(RLA)/Locked rotor Amp(LRA)	A	4. 15±5%	5. 4±5%	7. 45	
	Thermal protector		B160-135-241E/MR A13430-9087/ Outside sets	UP3-RE0596-T56/ Outside sets	UP3QE0391-T39/ Outside sets	Outside sets
	Capacitor	uF	25	35	45	50/400
	Refrigerant oil	ml	ESTER OIL VG74/350		ESTER OIL VG74. 750mi	
Indoor unit	Fan motor	Model		YDK-16-4	YDK-16-4	YDK-16-4
		Brand	W	35	35	45W
		Capacitor	uF	1. 2	1. 2	1. 2 μ F
		Speed(hi/mi/lo)	r/min	1250/1050 /850	1250/1050 /850	1250/1050/850
	Fan motor	diameter×height	mm	97X 633	97X 633	Φ 97× 772
	Air flow		m3/h	550/480/400	645/466/412/	720
	Noise level		dB(A)	42. 3/36. 5/30. 9	42. 7/39. 8/34. 5	37-45
	Dimension (W*H*D)		mm	790*270*180	790*270*180	940× 270× 180
	Packing (W*H*D)		mm	870*350*270	870*350*270	1005× 335× 260
	Net/Gross weight		Kg	10/12	10/12	12. 3/14
Outdoor uni	Fan motor	Model		YDK-30-6	YDK-35-6A H	YDK-38-6B
		Input	W	45	50	920
		Capacitor	uF	2	2	2. 5
		Speed	r/min	890	/ /	920
	Fan motor	diameter×height	mm	Φ 384× 136	Φ 401X 115	Φ 401× 115
	Air flow		m3/h			
	Noise level		dB(A)	51. 1/49	54/55	56
	Dimension (W*H*D)		mm	700*225*500	795*255*540	795*255*540

	Packing (W*H*D)		mm	825×320×550	920*335*595	920 * 335*595	990*410*775
	Net/Gross weight		Kg	30/31	33/36	40/42	58/62
	Refrigerant type		g	R410A/600	R410A/920	R410A/1350	R410A/2100
	Design pressure		MPa	3.8/1.2	3.8/1.2	4.0-1.2	4.0-1.2
connecting pipe/cable	Liquid pipe/ gas pipe dia. /length		mm	6.35/9.52 /3500	6.35/ 9.52 /3500	6.35/12.7 /4000	Φ9.52+ Φ16×5000
Electric fittings	PCB model			ZKFR-32GW/A 38-F	ZKFR-32GW/A 38-F	ZKFR-51GW/A 38-F	ZGHT-65-3CM
	Fuse model/fuse current		A	50CT/3.15	50CT/3.15	50CT/3.15	50CT/3.15
function	Remote controller type			ZH/JG-01	ZH/JG-01	ZH/JG-01	ZH-LW-01
	swing	horizontal(auto/manual)		Hand Moving	Hand Moving	Hand Moving	Hand Moving
		vertical(auto/manual)		Automatic	Automatic	Automatic	Automatic

Table 6-2

Model			CS-25H3A-V**AY	CS-35H3A-M**A	CS-51H3A-P**AH	CS-61H3A-P**A	
			1	H4	4A	E2	
Power supply		Ph-V-Hz	220-240/50	220-240/50	220-240/50	220-240/50	
Cooling	Capacity	W	2780	3600	5100	6200	
	Input	W	860	1120	1590	2040	
	Rated current	A	3.9	5.1	6.8	9.2	
	EER	w/w.	3.23	3.21	3.21	3.04	
Heating	Capacity	w	2780	3750	5400	6600	
	Input	W	770	1040	1600	1940	
	Rated current	A	3.4	4.7	6.9	8.7	
	COP	w/w	3.61	3.61	3.38	3.40	
Max. input consumption		W	1600	1850	2400	2700	
Max. current		A	8	9.9	12.5	14.3	
Compressor	Model		PA108X1C-4DZDE	PA140X2c-4FT	PA200X2C-4KU1	PA240X2CS-4KU1	
	Type		ROTAING	ROTAING	ROTAING	ROTAING	
	Brand		TSHIBA	TSHIBA	TSHIBA	TSHIBA	
	Capacity	W	2570	3365	4840	5800	
	Input	W	885	1160	1655	1985	
	Start electric current	A					
	Rated current(RLA)/Locked rotor Amp(LRA)	A	4.02	5.27	7.52	9.02	
	Thermal protector		Outside sets	Outside sets	Outside sets	Outside sets	
	Capacitor	uF	25/370	35/370	45/370	50/370	
	Refrigerant oil	ml					
Indoor unit	Fan motor	Model		YDK-14-4	YDK-16-4 3	YDK-23-4 A6	YDK-27-4 A6
		Brand	W	40	33	47	56
		Capacitor	uF	1.2	1	1.8	1.8
		Speed (hi/mi/lo)	r/min	1320	1320	1250/1150/1050	1300/1200/1100
	Fan motor	diameter×height	mm	φ97*583	φ100x622	φ98*715	φ 102χ710
	Air flow		m3/h	500	500	800	900
	Noise level		dB(A)	29-39	29-39	38-42	42-46
	Dimension (W*H*D)		mm	746*245*196	800*280*190	900*292*215	900*292*215

	Packing (W*H*D)		mm	833*330*270	860*350*265	990*377*300	990*377*300
	Net/Gross weight		Kg	9/11	12/14	14/17	14/17
Outdoor uni	Fan motor	Model		YDK-30-6	YDK-35-6A H	YDK-38-6B	YDK-40-6A 1
		Input	W	85	65	80	106
		Capacitor	uF	2	2	2.5	3
		Speed	r/min	890	900	920	870
	Fan motor	diameter×height	mm	φ384×136	φ401×115	Φ401×115	Φ415*115
	Air flow		m3/h	≥500			
	Noise level		dB(A)	51	54	54	54
	Dimension (W*H*D)		mm	700*225*500	795*255*540	795*255*540	850×295×605
	Packing (W*H*D)		mm	825*320*550	920*335*595	920*335*595	995×410×680
	Net/Gross weight		Kg	25/32	40/42	40/42	44/50
	Refrigerant type		g	R410A/560	R410A/970	R410A/1500	R410A/1900
	Design pressure		MPa	4.2-1.2	3.8-1.2	4.2-1.2	4.0-1.2
connecting pipe/cable		Liquid pipe/ gas pipe dia. /length	mm	φ 6.35/ φ 9.52/3500	φ 6.35/ φ 9.52/3500	φ 6.35/ φ 12.7/4000	φ 6.35/ φ 12.7/4000
Electric fittings	PCB model			ZGHE-85-3C2	ZGHM-85-3C4	ZGHP-85-3C	ZGHP-85-3C2
	Fuse model/fuse current		A	50CT/3.15	50CT/3.15	50CT/3.15	50CT/3.15
function	Remote controller type			ZH/JG-03	ZH/JG-03	ZH/JG-03	ZH/JG-03
	swing	horizontal (auto/manual)		Automatic	Automatic	Automatic	Automatic
		vertical (auto/manual)		Automatic	Automatic	Automatic	Automatic

Table 6-23

Model			KFR-70GW/X1c
Power supply		Ph-V-Hz	230/50
Cooling	Capacity	W	7000
	Input	W	2300
	Rated current	A	10.3
	EER	w/w.	3.04
Heating	Capacity	w	7500
	Input	W	2330
	Rated current	A	10.4
	COP	w/w	3.22
Max. input consumption		W	3600
Max. current		A	19.5
Compressor	Model		PA270X3CS-4MU2
	Type		ROTAING
	Brand		TSHIBA
	Capacity	W	6650
	Input	W	2270
	Start electric current	A	
	Rated current(RLA)/Locked rotor Amp(LRA)	A	10.32
	Thermal protector		Outside sets
	Capacitor	uF	50/400
	Refrigerant oil	ml	

Indoor unit	Fan motor	Model		YDK-38-4
		Brand	W	82
		Capacitor	uF	3.5
		Speed (hi/mi/lo)	r/min	1330/1200/1050
	Fan motor	diameter×height	mm	φ108×811
	Air flow		m3/h	1050
	Noise level		dB(A)	43-49
	Dimension (W×H×D)		mm	1070×325×250
	Packing (W×H×D)		mm	1280×400×305
	Net/Gross weight		Kg	18/21
Outdoor unit	Fan motor	Model		YDK-60A-6F
		Input	W	145
		Capacitor	uF	4
		Speed	r/min	850
	Fan motor	diameter×height	mm	φ460×180
	Air flow		m3/h	
	Noise level		dB(A)	56
	Dimension (W×H×D)		mm	875×315×680
	Packing (W×H×D)		mm	990×410×775
	Net/Gross weight		Kg	58/62
	Refrigerant type		g	R410A/2100
	Design pressure		MPa	4.0-1.2
connecting pipe/cable		Liquid pipe/ gas pipe dia. /length	mm	9.52/16×5000
Electric fittings	PCB model			ZGHS-85-4C
	Fuse model/fuse current		A	50CT/3.15
function	Remote controller type			ZH/JG-03
	swing	horizontal (auto/manual)		Automatic
		vertical (auto/manual)		Automatic

Model			CS-21H3A-C38AY1A(EER≥ 3.2)	CS-21H3A-M**AY1(EER≥ 2.9)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240/50
Cooling	Cooling capacity (actual/label)	W	2100	2200
	Cooling power input (actual/label)	W	650	685
	Heating current input (actual/label)	A	2.9	3.3
	EER (actual/label)	W/W	3.23	3.21
Heating	Heating capacity (actual/label)	W	2100	2300
	Heating power input (actual/label)	W	620	635
	Heating current input (actual/label)	A	2.8	3.0
	COP (actual/label)	W/W	3.39	3.62
Max. input consumption		W	900	1050
Max. current		A	4.8	5.4
Compressor	Model		5RS080EAB21	PA89X1C-4DZDE
	Type (Rotary、piston、scroll)		Rotary	Rotary
	Brand		PANASONIC	TOSHIBA
	Capacity	W	1840/1870	2075/2100
	Power input	W	665/680	715/735
	Starting current---(LRA) locked-rotor current LRA	A	11.3/12.4	15
	Running current RLA	A	3.05/2.90	3.3/3.15
	protector type (internal /external)		external	B135-135-241E/external
	capacity	uF-V	20/370	25/370
	Refrigeration lubricating oils,oil charge	ml	FV50S \370	ESTER OIL VG74 350ml

indoor unit	Fan motor	Model		YDK-16-4	YDK-16-4G
		Power input	W	40	30
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1150/950/850	1290
	Indoor fan	dia.*length	mm	φ97×633	φ98×622
		Rows*Tubes*Circuits		2*12*2	2*15*2
		Tube pitch* row pitch*Fin spacing	mm	17.6*12.3*1.4	21*12.7*1.4
		Tube outside dia.and typ	mm	φ7×0.32internal threaded pipe	φ7/internal threaded pipe
		Coil length x height x width	mm	647*197*25.2	615*315*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	400	400
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	29~39	29-39
	Dimension (L*W*H)		mm	780*270*180	800*280*190
	Packing (L*W*H)		mm	885×355×255	860*350*265
	Net/Gross weight		Kg	12/14	9/11
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-30-6
		Power input	W	45	85
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	890
	Outdoor fan	dia.*length	mm	φ384×136	647*462*12.7
	condensor	Rows*Tubes*Circuits		2*22*2	1*11*2
		Tube pitch* row pitch*Fin spacing	mm	21*13.37*1.7 (1.56)	21*12.7*1.4
		Tube outside dia.and typ	mm	7/internal threaded pipe	φ7/internal threaded pipe

	Coil size :length x height x width	mm	620*462*13.37 641*462*13.37	648*462*12.7
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	49	51
	Dimension size (L*W*H)	mm	700*225*500	700*225*500
	Packing size(L*W*H)	mm	825×320×550	825*320*550
	Net/Gross weight	Kg	27/31	30/32
	Refrigerant type/weight	g	R410A/800g	R410A/500
	Design pressure (Hi/Low)	MPa	3.8/1.2	3.8-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-21GW/GX1c(EER≥3.2)	KFR-21GW/GX1DC(EER≥3.2)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	2100	2100
	Cooling power input (actual/label)	W	650	650
	Heating current input (actual/label)	A	2.8	2.8
	EER (actual/label)	W/W	3.23	3.23
Heating	Heating capacity (actual/label)	W	2200	2200
	Heating power input (actual/label)	W	660	660
	Heating current input (actual/label)	A	2.9	2.9
	COP (actual/label)	W/W	3.33	3.33
Max. input consumption		W	900	900
Max. current		A	4.8	4.8

Compressor		Model		PA82X1C-4DZDE	PA82X1C-4DZDE
		Type (Rotary、piston 、 scroll)		Rotary	Rotary
		Brand		TOSHIBA	TOSHIBA
		Capacity	W	1920/1950	1920/1950
		Power input	W	660/680	660/680
		Starting current---(LRA) locked-rotor current LRA	A	15	15
		Running current RLA	A	3.04/2.85	3.04/2.85
		protector type (internal /external)		external	外置
		capacity	uF-V	25/370	25/370
		Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74 \750	ESTER OIL VG74 \750
indoor unit	Fan motor	Model		YDK-16-4	YDK-16-4
		Power input	W	35	35
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250/1050 /850	1250/1050 /850
	Indoor fan	dia.*length	mm	φ93×633	φ93×633
		Rows*Tubes*Circuits		2X12X2	2*12*2
		Tube pitch* row pitch*Fin spacing	mm	17.6X12.3X1.4	17.6*12.3*1.4
		Tube outside dia.and typ	mm	φ7×0.32internal threaded pipe	φ7×0.32internal threaded pipe
		Coil length x height x width	mm	647*197*25.2	647*197*25.2
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	400	400
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	32-41	32-41

	Dimension (L*W*H)		mm	790*270*180	790*270*180
	Packing (L*W*H)		mm	870*350*270	870*350*270
	Net/Gross weight		Kg	10/12	10/12
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-30-6
		Power input	W	45	45
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	890
	Outdoor fan	dia.*length	mm	φ384×136	φ384×136
	condensor	Rows*Tubes*Circuits		2*22	2*22
		Tube pitch* row pitch*Fin spacing	mm	21*13.37*1.7 (1.56)	21*13.37*1.7 (1.56)
		Tube outside dia.and typ	mm	7/internal threaded pipe	7/internal threaded pipe
		Coil size :length x height x width	mm	620*441*13.37 641*441*13.37	620*441*13.37 641*441*13.37
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	55	55
	Dimension size (L*W*H)		mm	700*225*500	700*225*500
	Packing size(L*W*H)		mm	825*320*550	825*320*550
	Net/Gross weight		Kg	30/31	30/31
	Refrigerant type/weight		g	R410A/750	R410A/750
	Design pressure (Hi/Low)		MPa	3.8/1.2	3.8/1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	6.35/ 9.52 /3500	φ6.35+φ9.52×3500
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-21GW/AGX1c(EER≥2.9)	CS-21H3A-V**AY3(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	2283/2300	2100
	Cooling power input (actual/label)	W	784/715	690
	Heating current input (actual/label)	A	3.5/3.3	3.1
	EER (actual/label)	W/W	2.91/3.21	3.04
Heating	Heating capacity (actual/label)	W	2200/2350	2350
	Heating power input (actual/label)	W	675/650	650
	Heating current input (actual/label)	A	3.0/3.0	2.9
	COP (actual/label)	W/W	3.25/3.61	3.62
Max. input consumption		W	1380	1000
Max. current		A	7	4.9
Compressor	Model		PA89X1C-4DZDE	PA82G0C-4BZDE
	Type (Rotary、piston 、scroll)		Rotary	Rotary
	Brand		TOSHIBA	toshiba
	Capacity	W	2100	1990/2010±5%
	Power input	W	735±5%	685/730±5%
	Starting current--- (LRA) locked-rotor current LRA	A	21.7±10%	14/16±10%
	Running current RLA	A	3.30±5%	3.15/3.20±5%
	protector type (internal		B160-135-241E/MRA13430-9087/external	D105-160A-241C/external

		/external)			
		capacity	uF-V	25uF-370VAC	25uF-370VAC
		Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74/350	ESTER OIL VG74.250ml
indoor unit	Fan motor	Model		YDK-16-4	YDK-14-4
		Power input	W	35	40
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250/1050 /850	1320
	Indoor fan	dia.*length	mm	93X 633	φ97X583
		Rows*Tubes*Circuits		2X12X2	2*12
		Tube pitch* row pitch*Fin spacing	mm	17.6X12.3X1.4	21*10.9*1.4
		Tube outside dia.and typ	mm	φ7×0.32internal threaded pipe	φ5internal threaded pipe
		Coil length x height x width	mm	647*197*25.2	557*82*21.8 579*169*21.8
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	550/480/400/(500)	400
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	42.3/36.5/30.9	29~38
	Dimension (L*W*H)		mm	790*270*180	745*250*195
	Packing (L*W*H)		mm	870*350*270	835×330×278
	Net/Gross weight		Kg	10/12	9/11
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-30-6E
		Power input	W	45	75
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	870
	Outdoor fan	dia.*length	mm	φ384×136	φ364×115
	condensor	Rows*Tubes*Circuits		1X11X2	1*11

	Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*12.7*1.4
	Tube outside dia.and typ	mm	7/internal threaded pipe	φ7internal threaded pipe
	Coil size :length x height x width	mm	648*462*12.7	605*441*12.7
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	51.1/49	51
	Dimension size (L*W*H)	mm	700*225*500	680*225*482
	Packing size(L*W*H)	mm	825*320*550	822*345*535
	Net/Gross weight	Kg	30/31	25/29
	Refrigerant type/weight	g	R410A/630	R410A/540g
	Design pressure (Hi/Low)	MPa	3.8/1.2	4.2/1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	6.35/ 9.52 /3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-25C3A-V**AY1(EER≥2.9)	CS-25H3A-V**AY1(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	2750/2641	2780
	Cooling power input (actual/label)	W	860/917	860
	Heating current input (actual/label)	A	3.8/3.82	3.9
	EER (actual/label)	W/W	3.20/2.88	3.23
Heating	Heating capacity (actual/label)	W		2780
	Heating power input (actual/label)	W		770
	Heating current input (actual/label)	A		3.4
	COP (actual/label)	W/W		3.61
Max. input consumption		W	1100	1600
Max. current		A	5.5	8
Compressor	Model		PA108X1C-4DZDE	PA108X1C-4DZDE
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	2570/2600	2570/2600
	Power input	W	885/915	885/915
	Starting current---(LRA) locked-rotor current LRA	A	21.7	21.7
	Running current RLA	A	4.15/4.00	4.15/4.00
	protector type (internal /external)		B160-135-241E	B160-135-241E
	capacity	uF-V	25/370	25/370
	Refrigeration lubricating oils,oil	ml	POE VG74 .350ml	POE VG74 .350ml

		charge			
indoor unit	Fan motor	Model		YDK-14-4	YDK-14-4
		Power input	W	40	40
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1320	1320
	Indoor fan	dia.*length	mm	φ97×583	φ97*583
		Rows*Tubes*Circuits		2*12*2	2*12*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6	21*12.7*1.6
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	580*167*25.4 558*82*25.4	580*167*25.4 558*82*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	450/425	500
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	32-39/32.8-38.8	29-39
	Dimension (L*W*H)		mm	746*245*196	746*245*196
	Packing (L*W*H)		mm	833*330*270	833*330*270
	Net/Gross weight		Kg	9/11	9/11
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-30-6
		Power input	W	85	85
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	890
	Outdoor fan	dia.*length	mm	φ384×136	φ384×136
	condensor	Rows*Tubes*Circuits		1*11*	1*11*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*12.7*1.4

	Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
	Coil size :length x height x width	mm	647*462*12.7	648*462*12.7
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	51/52.1	51
	Dimension size (L*W*H)	mm	700*225*500	700*225*500
	Packing size(L*W*H)	mm	825*320*550	825*320*550
	Net/Gross weight	Kg	30/32	30/32
	Refrigerant type/weight	g	R410A/550	R410A/560
	Design pressure (Hi/Low)	MPa	4.2-1.2	4.2-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-25H3A-V**AY1(EER≥ 2.9)	CS-25H3A-V**AY1(EER≥ 2.9)
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	2780	2780
	Cooling power input (actual/label)	W	860	860
	Heating current input (actual/label)	A	3.9	3.9
	EER (actual/label)	W/W	3.23	3.23
Heating	Heating capacity (actual/label)	W	2780	2780
	Heating power input (actual/label)	W	770	770
	Heating current input (actual/label)	A	3.4	3.4
	COP (actual/label)	W/W	3.61	3.61
Max. input consumption		W	1600	1600

Max. current		A	8	8
Compressor	Model		KN108VGMMC	5PS108EAA22
	Type (Rotary、piston、scroll)		Rotary	Rotary
	Brand		MITSUBISHI	PANASONIC
	Capacity	W	2520	2515/2535
	Power input	W	795	880/900
	Starting current---(LRA) locked-rotor current LRA	A	20	18/19.6
	Running current RLA	A	3.61	4.05/3.8
	protector type (internal /external)		internal	KA-122-LPD021A external
	capacity	uF-V	25μF/450V/50/60Hz/φ50	30/370
	Refrigeration lubricating oils,oil charge	ml		FV50S 350ml
indoor unit	Fan motor	Model	YDK-14-4	YDK-14-4
		Power input	W	40
		capacity	uF	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1320
	Indoor fan	dia.*length	mm	φ97*583
		Rows*Tubes*Circuits		2*12*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6
		Tube outside dia.and typ	mm	φ7internal threaded pipe
		Coil length x height x width	mm	580*167*25.4 558*82*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	500
	Indoor Noise Level dB (High/Low)		dB(A)	29-39

	(actual/label)				
	Dimension (L*W*H)		mm	746*245*196	746*245*196
	Packing (L*W*H)		mm	833*330*270	833*330*270
	Net/Gross weight		Kg	9/11	9/11
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-30-6
		Power input	W	85	85
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	890
	Outdoor fan	dia.*length	mm	φ384×136	φ384×136
	condensor	Rows*Tubes*Circuits		1*11*2	1*11*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*12.7*1.4
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil size :length x height x width	mm	648*462*12.7	648*462*12.7
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	51	51
	Dimension size (L*W*H)		mm	700*225*500	700*225*500
	Packing size(L*W*H)		mm	825*320*550	825*320*550
	Net/Gross weight		Kg	30/32	30/32
	Refrigerant type/weight		g	R410A/560	R410A/560
	Design pressure (Hi/Low)		MPa	4.2-1.2	4.2-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-25H3A-M**AY1A(EER≥2.9)	CS-25H3A-V84AY2B
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	2780	2680
	Cooling power input (actual/label)	W	865	870
	Heating current input (actual/label)	A	3.9	3.9
	EER (actual/label)	W/W	3.21	3.08
Heating	Heating capacity (actual/label)	W	2780	2700
	Heating power input (actual/label)	W	770	840
	Heating current input (actual/label)	A	3.4	3.8
	COP (actual/label)	W/W	3.61	3.21
Max. input consumption		W	1150	1600
Max. current		A	6	8
Compressor	Model		PA108X1C-4DZDE	PA108X1C-4DZDE
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	2570	2570/2600
	Power input	W	885	885/915
	Starting current---(LRA) locked-rotor current LRA	A		21.7
	Running current RLA	A	4.02	4.15/4.00
	protector type (internal /external)		internal	B160-135-241E
	capacity	uF-V	25/370	25/370
	Refrigeration lubricating oils,oil	ml		POE VG74 .350ml

		charge			
indoor unit	Fan motor	Model		YDK-16-4G	YDK-14-4
		Power input	W	30	40
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1290	1320
	Indoor fan	dia.*length	mm	φ98×622	φ97×583
		Rows*Tubes*Circuits		2*15*2	2*12*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*12.7*1.6
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	615*315*25.4	580*167*25.4 558*82*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	400	500
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	29-39	29-39
	Dimension (L*W*H)		mm	800*280*190	746*245*196
	Packing (L*W*H)		mm	860*350*265	833*330*270
	Net/Gross weight		Kg	10/12	9/11
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-30-6
		Power input	W	85	85
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	890
	Outdoor fan	dia.*length	mm	φ384×136	φ384×136
	condensor	Rows*Tubes*Circuits		1*11*2	2*22*
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*13.37*1.7 (1.56)

	Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
	Coil size :length x height x width	mm	648*462*12.7	625*462*13.37 647*462*13.37
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	51	51
	Dimension size (L*W*H)	mm	700*225*500	700*225*500
	Packing size(L*W*H)	mm	825*320*550	825*320*550
	Net/Gross weight	Kg	30/32	30/32
	Refrigerant type/weight	g	R410A/640	R410A/760
	Design pressure (Hi/Low)	MPa	4.2-1.2	3.8-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-25H3A-M**AY2A(EER≥2.9)	KFR-25GW/GX1c(EER≥3.2)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	2780	2500
	Cooling power input (actual/label)	W	865	770
	Heating current input (actual/label)	A	3.9	3.3
	EER (actual/label)	W/W	3.21	3.25
Heating	Heating capacity (actual/label)	W	2780	2600
	Heating power input (actual/label)	W	770	800
	Heating current input (actual/label)	A	3.4	3.5
	COP (actual/label)	W/W	3.61	3.25
Max. input consumption		W	1150	1100

Max. current		A	6	6
Compressor	Model		PA108X1C-4DZDE	5PS102EAA22
	Type (Rotary、piston 、scroll)		Rotary	Rotary
	Brand		TOSHIBA	PANASONIC
	Capacity	W	2570	2410/2440
	Power input	W	885±5 %	835/850
	Starting current---(LRA) locked-rotor current LRA	A	21.7±10 %	19.0/20.9
	Running current RLA	A	4.15±5 %	3.85/3.6
	protector type (internal /external)		B160-135-241E/MRA13430-9087/外置	external
	capacity	uF-V	25	30/370
	Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74/350	FV50S \350
indoor unit	Fan motor	Model	YDK-16-4G	YDK-16-4
		Power input	W	30
		capacity	uF	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1290
	Indoor fan	dia.*length	mm	φ98×622
		Rows*Tubes*Circuits		2*15*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4
		Tube outside dia.and typ	mm	φ7internal threaded pipe
		Coil length x height x width	mm	615*315*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	400
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	29~39
				37-42

	Dimension (L*W*H)		mm	800*280*190	790*270*180
	Packing (L*W*H)		mm	865×358×275	870*350*270
	Net/Gross weight		Kg	10/12	10/12
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-35-6A H
		Power input	W	45	50
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	/ /
	Outdoor fan	dia.*length	mm	φ384×136	φ401×115®-3
	condensor	Rows*Tubes*Circuits		1*11*2	2*24
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*13.37*1.56
		Tube outside dia.and typ	mm	φ7internal threaded pipe	7/internal threaded pipe
		Coil size :length x height x width	mm	648*462*12.7	747*504*13.37 768*504*13.37
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	51	58
	Dimension size (L*W*H)		mm	700*225*500	795*255*540
	Packing size(L*W*H)		mm	825*320*550	920×335×595
	Net/Gross weight		Kg	25/29	33/36
	Refrigerant type/weight		g	R410A/640g	R410A/1050
	Design pressure (Hi/Low)		MPa	4.2/1.2	3.8/1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	6.35/ 9.52 /3500
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-25GW/AGX1c(EER≥2.9)	CS-32H3A-V**AH4A(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240/50
Cooling	Cooling capacity (actual/label)	W	2600/2780	3210
	Cooling power input (actual/label)	W	928/865	1000
	Heating current input (actual/label)	A	4.1/4.0	4.8
	EER (actual/label)	W/W	2.8/3.21	3.21
Heating	Heating capacity (actual/label)	W	2700/2780	3300
	Heating power input (actual/label)	W	812/770	1050
	Heating current input (actual/label)	A	3.6/3.5	5.1
	COP (actual/label)	W/W	3.30/3.61	3.14
Max. input consumption		W	1250	1700
Max. current		A	7	7.4
Compressor	Model		PA108X1C-4DZDE	RN125VHFMC
	Type (Rotary、piston 、 scroll)		8.5/10	Rotary
	Brand		TOSHIBA	MITSUBISHI
	Capacity	W	2570	3050
	Power input	W	885±5%	1055
	Starting current---(LRA) locked-rotor current LRA	A	21.7±10%	26.4
	Running current RLA	A	4.15±5%	4.8
	protector type (internal /external)		B160-135-241E/MRA13430-9087/external	internal

		capacity	uF-V	25	25μF±5%/450VAC, 50/60Hz
		Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74/350	
indoor unit	Fan motor	Model		YDK-16-4	YDK-14-4
		Power input	W	35	40
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250/1050 /850	1320
	Indoor fan	dia.*length	mm	97X 633	φ97χ583
		Rows*Tubes*Circuits		2X12X2	2*12
		Tube pitch* row pitch*Fin spacing	mm	17.6X12.3X1.4	21*12.7*1.7
		Tube outside dia.and typ	mm	φ7×0.25+0.18/internal threaded pipe	φ7×0.36internal threaded pipe
		Coil length x height x width	mm	647X197	579*168*25.4 557*84*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	550/480/400/(500)	450
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	42.3/36.5/30.9	29-40
	Dimension (L*W*H)		mm	790*270*180	746*245*196
	Packing (L*W*H)		mm	870*350*270	833*330*270
	Net/Gross weight		Kg	10/12	9/11
Outdoor unit	Fan motor	Model		YDK-30-6	YDK-35-6A H
		Power input	W	45	67
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	890	900
	Outdoor fan	dia.*length	mm	φ384×136	φ401×115
	condensor	Rows*Tubes*Circuits		1X11X2	1*10*
		Tube pitch* row pitch*Fin	mm	21*12.7*1.4	25*22*1.4

	spacing			
	Tube outside dia.and typ	mm	φ7/internal threaded pipe	φ9.52internal threaded pipe
	Coil size :length x height x width	mm	648*462*12.7	783*500*22
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	51.1/49	54
	Dimension size (L*W*H)	mm	700*225*500	795*255*540
	Packing size(L*W*H)	mm	825×320×550	920*335*595
	Net/Gross weight	Kg	30/31	40/42
	Refrigerant type/weight	g	R410A/600	R410A/870
	Design pressure (Hi/Low)	MPa	3.8/1.2	3.8-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	6.35/ 9.52 /3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-32H3A-V**AH4A(EER≥2.9)	CS-32H3A-V**AH4A(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	3210	3210
	Cooling power input (actual/label)	W	1000	1000
	Heating current input (actual/label)	A	4.8	4.8
	EER (actual/label)	W/W	3.21	3.21
Heating	Heating capacity (actual/label)	W	3300	3300
	Heating power input (actual/label)	W	1050	1050
	Heating current input (actual/label)	A	5.1	5.1
	COP (actual/label)	W/W	3.14	3.14
Max. input consumption		W	1700	1700
Max. current		A	7.4	7.4
Compressor	Model		5PS132EAA22	PA130G1C-4FT
	Type (Rotary、piston、scroll)		Rotary	Rotary
	Brand		panasonic	toshiba
	Capacity	W	3120/3150±5%	3130/3175±5%
	Power input	W	1085/1115±5%	1045/1095±5%
	Starting current---(LRA) locked-rotor current LRA	A	24/26	
	Running current RLA	A	5.05/4.85±5%	4.85/4.80±5%
	protector type (internal /external)		external	internal
	capacity	uF-V	30uF-370VAC	35uF-370VAC
	Refrigeration lubricating oils,oil charge	ml	FV50S.350ml	ESTER OIL VG74.400ml

indoor unit	Fan motor	Model		YDK-14-4	YDK-14-4
		Power input	W	40	40
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1320	1320
	Indoor fan	dia.*length	mm	φ97χ583	φ97χ583
		Rows*Tubes*Circuits		2*12	2*12
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.7	21*12.7*1.7
		Tube outside dia.and typ	mm	φ7×0.36internal threaded pipe	φ7×0.36internal threaded pipe
		Coil length x height x width	mm	579*168*25.4 557*84*25.4	579*168*25.4 557*84*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	450	450
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	29-40	29-40
	Dimension (L*W*H)		mm	746*245*196	746*245*196
	Packing (L*W*H)		mm	833*330*270	833*330*270
	Net/Gross weight		Kg	9/11	9/11
Outdoor unit	Fan motor	Model		YDK-35-6A H	YDK-35-6A H
		Power input	W	67	67
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	900	900
	Outdoor fan	dia.*length	mm	φ401×115	φ401×115
	condensor	Rows*Tubes*Circuits		1*10*	1*10*
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.4	25*22*1.4
		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe

	Coil size :length x height x width	mm	783*500*22	783*500*22
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	54	54
	Dimension size (L*W*H)	mm	795*255*540	795*255*540
	Packing size(L*W*H)	mm	920*335*595	920*335*595
	Net/Gross weight	Kg	40/42	40/42
	Refrigerant type/weight	g	R410A/870	R410A/870
	Design pressure (Hi/Low)	MPa	3.8-1.2	3.8-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-32GW/GX1c(EER≥3.2)	KFR-32GW/GX1DC(EER≥3.2)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	3200	3200
	Cooling power input (actual/label)	W	950	950
	Heating current input (actual/label)	A	4.1	4.1
	EER (actual/label)	W/W	3.37	3.37
Heating	Heating capacity (actual/label)	W	3200	3200
	Heating power input (actual/label)	W	880	880
	Heating current input (actual/label)	A	3.8	3.8
	COP (actual/label)	W/W	3.64	3.64
Max. input consumption		W	1300	1300
Max. current		A	7	7
Compressor	Model		PA118X1C-4FZ	PA118X1C-4FZ

		Type (Rotary、piston 、scroll)		Rotary	Rotary
		Brand		TOSHIBA	TOSHIBA
		Capacity	W	2800/2815	2800/2815
		Power input	W	965/980	965/980
		Starting current---(LRA) locked-rotor current LRA	A	21.7/23.7	21.7/23.7
		Running current RLA	A	4.50/4.30	4.50/4.30
		protector type (internal /external)		internal	internal
		capacity	uF-V	25/370	25/370
		Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74 \350	ESTER OIL VG74 \350
indoor unit	Fan motor	Model		YDK-16-4	YDK-16-4
		Power input	W	35	35
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250/1050 /850	1250/1050 /850
	Indoor fan	dia.*length	mm	97X 633	97*633
		Rows*Tubes*Circuits		2*16*3	2*16*3
		Tube pitch* row pitch*Fin spacing	mm	17.6X12.7X1.56	17.6*12.7*1.56
		Tube outside dia.and typ	mm	φ7×0.25+0.18/internal threaded pipe	φ7×0.25+0.18/internal threaded pipe
		Coil length x height x width	mm	645*281*1.56	645*281*1.56
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	560	560
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	37-42	37-42
	Dimension (L*W*H)		mm	790*270*180	790*270*180

	Packing (L*W*H)		mm	870*350*270	870*350*270
	Net/Gross weight		Kg	12/14	12/14
Outdoor unit	Fan motor	Model		YDK-35-6A H	YDK-35-6A H
		Power input	W	50	67
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	/ /	900±20
	Outdoor fan	dia.*length	mm	φ401×115®-3	φ401×115
	condensor	Rows*Tubes*Circuits		2*24	2*24
		Tube pitch* row pitch*Fin spacing	mm	21*13.37*1.56	21*13.37*1.56
		Tube outside dia.and typ	mm	7/internal threaded pipe	7/internal threaded pipe
		Coil size :length x height x width	mm	747*504*13.37 768*504*13.37	747*504*13.37 768*504*13.37
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	52	52
	Dimension size (L*W*H)		mm	795*255*540	795*255*540
	Packing size(L*W*H)		mm	920×335×595	920×335×595
	Net/Gross weight		Kg	33/36	33/36
	Refrigerant type/weight		g	R410A/1150	R410A/1150
	Design pressure (Hi/Low)		MPa	3.8/1.2	3.8/1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm		φ6.35+φ9.52×3500
		Max. refrigerant pipe length /Max. difference in level	m		15/5

Model			CS-35C3A-M**AH4(EER≥2.9)	CS-35H3A-M**AH4(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	3590/3430	3600
	Cooling power input (actual/label)	W	1120/1189	1120
	Heating current input (actual/label)	A	5/4.96	5.1
	EER (actual/label)	W/W	3.21/2.88	3.21
Heating	Heating capacity (actual/label)	W		3750
	Heating power input (actual/label)	W		1040
	Heating current input (actual/label)	A		4.7
	COP (actual/label)	W/W		3.61
Max. input consumption		W	1750	1850
Max. current		A	8.8	9.9
Compressor	Model		PA140X2C-4FT	PA140X2c-4FT
	Type (Rotary、piston 、scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	3365	3365/3385
	Power input	W	1160	1160/1200
	Starting current---(LRA) locked-rotor current LRA	A		26.01
	Running current RLA	A	5.27	5.4/5.23
	protector type (internal /external)		internal	internal
	capacity	uF-V	35/370	35/370
	Refrigeration lubricating oils,oil	ml		ESTER OIL VG74 480ml

		charge			
indoor unit	Fan motor	Model		YDK-16-4 3	YDK-16-4 3
		Power input	W	33	33
		capacity	uF	1	1
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1320	1320
	Indoor fan	dia.*length	mm	φ100x622	φ100x622
		Rows*Tubes*Circuits		2*15*2	2*15*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4	21*12.7*1.4
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	615*315*25.4	615*315*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	500/506	500
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	29-39/29.4-39.1	29-39
	Dimension (L*W*H)		mm	800*280*190	800*280*190
	Packing (L*W*H)		mm	860*350*265	860*350*265
	Net/Gross weight		Kg	12/14	12/14
Outdoor unit	Fan motor	Model		YDK-35-6A H	YDK-35-6A H
		Power input	W	67	67
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	900	900
	Outdoor fan	dia.*length	mm	φ401×115	φ401×115
	condensor	Rows*Tubes*Circuits		1*10*	1*10*
		Tube pitch* row pitch*Fin spacing	mm	22*25*0.14	25*22*1.4

	Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe
	Coil size :length x height x width	mm	763*500*22	783*500*22
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	54/54.6	54
	Dimension size (L*W*H)	mm	795*255*540	795*255*540
	Packing size(L*W*H)	mm	920*335*595	920*335*595
	Net/Gross weight	Kg	40/42	40/42
	Refrigerant type/weight	g	R410A/820	R410A/970
	Design pressure (Hi/Low)	MPa	4.2-1.2	3.8-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-35H3A-M**AH4(EER≥ 2.9)	CS-35H3A-M**AH4A
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	3600	3500
	Cooling power input (actual/label)	W	1120	1125
	Heating current input (actual/label)	A	5.1	5
	EER (actual/label)	W/W	3.21	3.11
Heating	Heating capacity (actual/label)	W	3750	3600
	Heating power input (actual/label)	W	1040	1100
	Heating current input (actual/label)	A	4.7	4.9
	COP (actual/label)	W/W	3.61	3.27
Max. input consumption		W	1850	1880

Max. current		A	9.9	10
Compressor	Model		5KS140EBA21	PA140X2c-4FT
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		PANASONIC	TOSHIBA
	Capacity	W	3360/3390	3365
	Power input	W	1180/1200	1160
	Starting current---(LRA) locked-rotor current LRA	A	25.3/27.6	
	Running current RLA	A	5.4/5.1	5.27
	protector type (internal /external)		B210-155-141C external	internal
	capacity	uF-V	35/400	35/370
	Refrigeration lubricating oils,oil charge	ml	FV50S 430ml	
indoor unit	Fan motor	Model	YDK-16-4 3	YDK-16-4 3
		Power input	W	33
		capacity	uF	1
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1320
	Indoor fan	dia.*length	mm	φ100x622
		Rows*Tubes*Circuits		2*15*2
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.4
		Tube outside dia.and typ	mm	φ7internal threaded pipe
		Coil length x height x width	mm	615*315*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	500
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	29-39

	Dimension (L*W*H)		mm	800*280*190	800*280*190
	Packing (L*W*H)		mm	860*350*265	860*350*265
	Net/Gross weight		Kg	12/14	12/14
Outdoor unit	Fan motor	Model		YDK-35-6A H	YDK-35-6A H
		Power input	W	67	67
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	900	900
	Outdoor fan	dia.*length	mm	φ401×115	φ401×115
	condensor	Rows*Tubes*Circuits		1*10*	2*24*
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.4	21*12.7*1.56
		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ7internal threaded pipe
		Coil size :length x height x width	mm	783*500*22	747*504*12.7 769*504*12.7
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	54	54
	Dimension size (L*W*H)		mm	795*255*540	795*255*540
	Packing size(L*W*H)		mm	920*335*595	920*335*595
	Net/Gross weight		Kg	40/42	40/42
	Refrigerant type/weight		g	R410A/970	R410A/1080
	Design pressure (Hi/Low)		MPa	3.8-1.2	3.8-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ6.35+φ9.52×3500	φ6.35+φ9.52×3500
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-35GW/GX1c	KFR-35GW/AGX1c(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	230/50
Cooling	Cooling capacity (actual/label)	W	3433/3590	3433/3590
	Cooling power input (actual/label)	W	1183/1120	1183/1120
	Heating current input (actual/label)	A	5.2/5.1	5.2/5.1
	EER (actual/label)	W/W	2.90/3.21	2.90/3.21
Heating	Heating capacity (actual/label)	W	3414/3680	3414/3680
	Heating power input (actual/label)	W	1076/1020	1076/1020
	Heating current input (actual/label)	A	4.8/4.7	4.8/4.7
	COP (actual/label)	W/W	3.17/3.61	3.17/3.61
Max. input consumption		W	2170	2170
Max. current		A	10.6	10.6
Compressor	Model		PA140X2C-4FT	PA140X2C-4FT
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	3365	3365
	Power input	W	1160±5%	1160±5%
	Starting current---(LRA) locked-rotor current LRA	A		
	Running current RLA	A	5.4±5%	5.4±5%
	protector type (internal /external)		UP3-RE0596-T56/internal	UP3-RE0596-T56/internal
	capacity	uF-V	35	35
	Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74/480	

indoor unit	Fan motor	Model		YDK-16-4	YDK-16-4
		Power input	W	35	35
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250/1050 /850	1250/1050 /850
	Indoor fan	dia.*length	mm	97X 633	97X 633
		Rows*Tubes*Circuits		2X16X3	2X16X3
		Tube pitch* row pitch*Fin spacing	mm	17.6X12.7X1.56	17.6X12.7X1.56
		Tube outside dia.and typ	mm	φ7×0.25+0.18/internal threaded pipe	φ7×0.25+0.18/internal threaded pipe
		Coil length x height x width	mm	645X281	645X281
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	645/466/412/(600)	645/466/412/(600)
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	42.7/39.8/34.5	42.7/39.8/34.5
	Dimension (L*W*H)		mm	790*270*180	790*270*180
	Packing (L*W*H)		mm	870*350*270	870*350*270
	Net/Gross weight		Kg	12/14	12/14
Outdoor unit	Fan motor	Model		YDK-35-6A H	YDK-35-6A H
		Power input	W	50	50
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	/ /	/ /
	Outdoor fan	dia.*length	mm	φ401X 115	φ401X 115
	condensor	Rows*Tubes*Circuits		1X 10 X2	1X 10 X2
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.4	25*22*1.4
		Tube outside dia.and typ	mm	9.5/internal threaded pipe	9.5/internal threaded pipe

	Coil size :length x height x width	mm	783*500*22	783*500*22
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	54/55	54/55
	Dimension size (L*W*H)	mm	795*255*540	795*255*540
	Packing size(L*W*H)	mm	920×335×595	920×335×595
	Net/Gross weight	Kg	33/36	33/36
	Refrigerant type/weight	g	R410A/920	R410A/920
	Design pressure (Hi/Low)	MPa	3.8/1.2	3.8/1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	6.35/ 9.52 /3500	6.35/ 9.52 /3500
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-35GW/AGX1C(EER≥2.9)	KFR-35GW/AGX1DC(EER≥2.9)
Rated volt and frequency		Ph-V-Hz	230/50	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	3433/3590	3433/3590
	Cooling power input (actual/label)	W	1183/1120	1183/1120
	Heating current input (actual/label)	A	5.2/5.1	5.2/5.1
	EER (actual/label)	W/W	2.90/3.21	2.90/3.21
Heating	Heating capacity (actual/label)	W	3414/3680	3414/3680
	Heating power input (actual/label)	W	1076/1020	1076/1020
	Heating current input (actual/label)	A	4.8/4.7	4.8/4.7
	COP (actual/label)	W/W	3.17/3.61	3.17/3.61
Max. input consumption		W	2170	2170
Max. current		A	10.6	10.6
Compressor	Model		5KS140EBA21	PA140X2C-4FT

		Type (Rotary、piston 、scroll)		Rotary	Rotary
		Brand		PANASONIC	TOSHIBA
		Capacity	W	3360/3390±5%	3365
		Power input	W	1180/1200±5%	1160±5 %
		Starting current---(LRA) locked-rotor current LRA	A	29.7/28.1	
		Running current RLA	A	5.4/5.1	5.4±5%
		protector type (internal /external)		7100858(B210-155-141C	UP3-RE0596-T56/internal
		capacity	uF-V	35μF±5%	35
		Refrigeration lubricating oils,oil charge	ml		
indoor unit	Fan motor	Model		YDK-16-4	YDK-16-4
		Power input	W	35	35
		capacity	uF	1.2	1.2
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250/1050 /850	1250/1050 /850
	Indoor fan	dia.*length	mm	97X 633	φ97×633
		Rows*Tubes*Circuits		2X16X3	2*16*3
		Tube pitch* row pitch*Fin spacing	mm	17.6X12.7X1.56	17.6*12.7*1.56
		Tube outside dia.and typ	mm	φ7×0.25+0.18/internal threaded pipe	φ7×0.25+0.18/internal threaded pipe
		Coil length x height x width	mm	645X281	645X281
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	645/466/412/(600)	600
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	42.7/39.8/34.5	35~42
	Dimension (L*W*H)		mm	790*270*180	790*270*180

	Packing (L*W*H)		mm	870*350*270	870*350*270
	Net/Gross weight		Kg	12/14	12/14
Outdoor unit	Fan motor	Model		YDK-35-6A H	YDK-35-6A H
		Power input	W	50	67
		capacity	uF	2	2
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	/ /	900±20
	Outdoor fan	dia.*length	mm	φ401X 115	φ401X 115
	condensor	Rows*Tubes*Circuits		1X 10 X2	1*10 *2
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.4	25*22*1.4
		Tube outside dia.and typ	mm	9.5/internal threaded pipe	φ9.52internal threaded pipe
		Coil size :length x height x width	mm	783*500*22	783*500*22
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	54/55	54
	Dimension size (L*W*H)		mm	795*255*540	795*255*540
	Packing size(L*W*H)		mm	920×335×595	920×335×595
	Net/Gross weight		Kg	33/36	32/36
	Refrigerant type/weight		g	R410A/920	R410A/920
	Design pressure (Hi/Low)		MPa	3.8/1.2	4.2/1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	6.35/ 9.52 /3500	6.35/ 9.52 /3500
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-51C3A-P**AH4(EER≥ 2.75)	CS-51H3A-P**AH4
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240/50
Cooling	Cooling capacity (actual/label)	W	5400/5025	5100
	Cooling power input (actual/label)	W	1685/1743	1800
	Heating current input (actual/label)	A	7.3/7.5	8.1
	EER (actual/label)	W/W	3.21/2.88	2.83
Heating	Heating capacity (actual/label)	W		5400
	Heating power input (actual/label)	W		1700
	Heating current input (actual/label)	A		7.6
	COP (actual/label)	W/W		3.18
Max. input consumption		W	2200	2400
Max. current		A	11.5	12.5
Compressor	Model		PA200X2C-4KU1	PA200X2C-4KU1
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	4840	4840
	Power input	W	1655	1655
	Starting current---(LRA) locked-rotor current LRA	A		
	Running current RLA	A	7.52	7.52
	protector type (internal /external)		internal	internal
	capacity	uF-V	45/370	45/370
	Refrigeration lubricating oils,oil	ml		

		charge			
indoor unit	Fan motor	Model		YDK-23-4 A6	YDK-23-4 A6
		Power input	W	47	47
		capacity	uF	1.8	1.8
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250±20rpm 1150±30rpm 1050±40rpm	1250±20rpm 1150±30rpm 1050±40rpm
	Indoor fan	dia.*length	mm	φ98×715	φ98*715
		Rows*Tubes*Circuits		2*17*3	2*17*3
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6	21*12.7*1.6
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	705*357*25.4	705*357*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	800/811	800
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	37-47	37-44
	Dimension (L*W*H)		mm	900*292*215	900*292*215
	Packing (L*W*H)		mm	990*377*300	990*377*300
	Net/Gross weight		Kg	14/17	14/17
Outdoor unit	Fan motor	Model		YDK-38-6B	YDK-38-6B
		Power input	W	80	80
		capacity	uF	2.5	2.5
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	920	920
	Outdoor fan	dia.*length	mm	Φ401×115	Φ401×115
	condensor	Rows*Tubes*Circuits		2.24*	2*20*
		Tube pitch* row pitch*Fin spacing	mm	21*13.37*1.56	25*21.65*1.7
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ9.52internal threaded pipe

	Coil size :length x height x width	mm	747*504*13.37 768*504*13.37	727*500*21.65 761*500*21.65
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	54	54
	Dimension size (L*W*H)	mm	795*255*540	795*255*540
	Packing size(L*W*H)	mm	920*335*595	920*335*595
	Net/Gross weight	Kg	40/42	40/42
	Refrigerant type/weight	g	R410A/1400	R410A/1500
	Design pressure (Hi/Low)	MPa	4.2-1.2	4.0-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ12.7×4000	φ6.35+φ12.7×4000
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model		CS-51H3A-P**AH4A(EER≥2.75)		CS-51H3A-N**AE2
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	5100	5100
	Cooling power input (actual/label)	W	1590	1590
	Heating current input (actual/label)	A	6.8	6.8
	EER (actual/label)	W/W	3.21	3.21
Heating	Heating capacity (actual/label)	W	5400	5600
	Heating power input (actual/label)	W	1600	1550
	Heating current input (actual/label)	A	6.9	6.7
	COP (actual/label)	W/W	3.38	3.61
Max. input consumption		W	2400	2300
Max. current		A	12.5	12.3

Compressor		Model		PA200X2C-4KU1	PA200X2CS-4KU1
		Type (Rotary、piston 、 scroll)		Rotary	Rotary
		Brand		TOSHIBA	TOSHIBA
		Capacity	W	4840	4890
		Power input	W	1655	1715
		Starting current--- (LRA) locked-rotor current LRA	A		31.83
		Running current RLA	A	7.52	7.45
		protector type (internal /external)		internal	UP3QE0391-T39internal
		capacity	uF-V	45/370	45
		Refrigeration lubricating oils,oil charge	ml		ESTER OIL VG74. 750mi
indoor unit	Fan motor	Model		YDK-23-4 A6	YDK-26-4 A6
		Power input	W	47	56
		capacity	uF	1.8	1.8
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250±20rpm 1150±30rpm 1050±40rpm	1300/1200/1080
	Indoor fan	dia.*length	mm	φ98*715	φ101.5x762
		Rows*Tubes*Circuits		2*17*3	2*18
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6	20.4*12.7*1.45
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	705*357*25.4	766*252*25.4 747*126*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	800	900
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	37-47	43-47

	Dimension (L*W*H)		mm	900*292*215	1000×320×200
	Packing (L*W*H)		mm	990*377*300	1190×380×300 (有附件) 1085×380×300 (无附件)
	Net/Gross weight		Kg	14/17	15/17
Outdoor unit	Fan motor	Model		YDK-38-6B	YDK-40-6A 1
		Power input	W	80	105
		capacity	uF	2.5	3
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	920	870
	Outdoor fan	dia.*length	mm	Φ401×115	Φ415
	condensor	Rows*Tubes*Circuits		2*20*	2*24
		Tube pitch* row pitch*Fin spacing	mm	25*21.65*1.7	22*19.05*1.6
		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ8internal threaded pipe
		Coil size :length x height x width	mm	727*500*21.65 761*500*21.65	773*550*19.05 803*550*19.05
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	54	56
	Dimension size (L*W*H)		mm	795*255*540	850×295×605
	Packing size(L*W*H)		mm	920*335*595	995×415×690
	Net/Gross weight		Kg	40/42	44/50
	Refrigerant type/weight		g	R410A/1500	R410A/1450g
	Design pressure (Hi/Low)		MPa	4.2-12	4.0-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ6.35+φ12.7×4000	φ6.35+φ12.7×4000
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CS-51H3A-P96AH4A(EER≥3.2)	CS-51H3A-S67AH1
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	5100	5200
	Cooling power input (actual/label)	W	1590	1680
	Heating current input (actual/label)	A	6.8	7.7
	EER (actual/label)	W/W	3.21	3.10
Heating	Heating capacity (actual/label)	W	5400	5400
	Heating power input (actual/label)	W	1600	1500
	Heating current input (actual/label)	A	6.9	6.8
	COP (actual/label)	W/W	3.38	3.60
Max. input consumption		W	2400	2500
Max. current		A	12.5	14
Compressor	Model		PA200X2C-4KU1	PA200X2CS-4KU1
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	4840	4890
	Power input	W	1655	1715
	Starting current---(LRA) locked-rotor current LRA	A		31.83
	Running current RLA	A	7.52	7.45
	protector type (internal /external)		internal	UP3QE0391-T39internal
	capacity	uF-V	45/370	45
	Refrigeration lubricating oils,oil	ml		ESTER OIL VG74. 750mi

		charge			
indoor unit	Fan motor	Model		YDK-23-4 A6	YDK-38-4 1
		Power input	W	47	53
		capacity	uF	1.8	
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1250±20rpm 1150±30rpm 1050±40rpm	HI:1000±20rpm ME:900±30rpm LOW:800±40rpm
	Indoor fan	dia.*length	mm	φ98*715	φ108×811
		Rows*Tubes*Circuits		2*17*3	2*20*5
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6	20.4*12.7*1.4
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	705*357*25.4	815*408*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	800	950
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	38-42	37-45
	Dimension (L*W*H)		mm	900*292*215	1070×325×250
	Packing (L*W*H)		mm	990*377*300	1175×305×395
	Net/Gross weight		Kg	14/17	18/21
Outdoor unit	Fan motor	Model		YDK-38-6B	YDK-38-6B
		Power input	W	80	80
		capacity	uF	2.5	2.5
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	920	920
	Outdoor fan	dia.*length	mm	Φ401×115	Φ401×115
	condensor	Rows*Tubes*Circuits		2*20*	2*20*
		Tube pitch* row pitch*Fin spacing	mm	25*21.65*1.7	25*21.65*1.7

		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe
		Coil size :length x height x width	mm	727*500*21.65 761*500*21.65	727*500*21.65 761*500*21.65
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	54	54
	Dimension size (L*W*H)		mm	795*255*540	795*255*540
	Packing size(L*W*H)		mm	920*335*595	920*335*595
	Net/Gross weight		Kg	40/42	40/42
	Refrigerant type/weight		g	R410A/1500	R410A/1670g
	Design pressure (Hi/Low)		MPa	4.2-12	4.0-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ6.35+φ12.7×4000	φ6.35+φ12.7×4000
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			KFR-51GW/BGX1c(EER≥2.75)	CS-61H3A-P**AE2(EER≥2.75)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240/50
Cooling	Cooling capacity (actual/label)	W	5100	5975/6200
	Cooling power input (actual/label)	W	1590	2112/2040
	Heating current input (actual/label)	A	6.8	9.6/9.2
	EER (actual/label)	W/W	3.21	2.83/3.04
Heating	Heating capacity (actual/label)	W	5200	6388/6600
	Heating power input (actual/label)	W	1600	2114/1940
	Heating current input (actual/label)	A	6.9	9.6/8.7
	COP (actual/label)	W/W	3.25	3.02/3.40
Max. input consumption		W	2300	2700

Max. current		A	12.3	14.3	
Compressor	Model		PA200X2CS-4KU1	PA240X2CS-4KU1	
	Type (Rotary、piston 、scroll)		Rotary	Rotary	
	Brand		TOSHIBA	TOSHIBA	
	Capacity	W	4890	5800	
	Power input	W	1715	1985	
	Starting current---(LRA) locked-rotor current LRA	A	31.83	36.8	
	Running current RLA	A	7.45	9.3	
	protector type (internal /external)		UP3QE0391-T39internal	internal	
	capacity	uF-V	45	50/370	
	Refrigeration lubricating oils,oil charge	ml	ESTER OIL VG74. 750mi	ESTER OIL VG74 750ml	
indoor unit	Fan motor	Model	(YDK-16-4)220-240V/50Hz	YDK-27-4 A6	
		Power input	W	45W	56
		capacity	uF	1.2μF	1.8
		Indoor Fan Speed RPM (High/Med/Low)	r/min	Hi:1250±10rpm Med:1050±10rpm low: 850±10rpm	Hi:: 1300±20rpm Med:: 1200±30rpm low: : 1100±40rpm
	Indoor fan	dia.*length	mm	φ97×772	φ102χ710
		Rows*Tubes*Circuits		2*16*4	2*20*5
		Tube pitch* row pitch*Fin spacing	mm	17.6X13X1.56	21*12.7*1.6
		Tube outside dia.and typ	mm	φ7/internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	787*280*25.4	705*375*25.4 705*126*12.7
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	720	859/900
	Indoor Noise Level dB (High/Low)		dB(A)	37-45	46.3（实测）/42-46

	(actual/label)				
	Dimension (L*W*H)		mm	940×270×180	900*292*215
	Packing (L*W*H)		mm	1005×335×260	990*377*300
	Net/Gross weight		Kg	12.3/14	14/17
Outdoor unit	Fan motor	Model		YDK-38-6B	YDK-40-6A 1
		Power input	W	80	106
		capacity	uF	2.5	3
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	920	870
	Outdoor fan	dia.*length	mm	Φ401×115	Φ415
	condensor	Rows*Tubes*Circuits		2*20*	2*22*
		Tube pitch* row pitch*Fin spacing	mm	25*21.65*1.7	25*22*1.6
		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe
		Coil size :length x height x width	mm	727*500*21.65 761*500*21.65	766*550*22 801*550*22
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	56	54.3（实测）/54
	Dimension size (L*W*H)		mm	795*255*540	850×295×605
	Packing size(L*W*H)		mm	920*335*595	995×410×680
	Net/Gross weight		Kg	40/42	44/50
	Refrigerant type/weight		g	R410A/1350	R410A/1900
	Design pressure (Hi/Low)		MPa	4.0-1.2	4.0-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	6.35/12.7 /4000	φ6.35+φ12.7×4000
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

Model			CSS-61H3A-P**AE2	KFR-61GW/X1c(EER≥2.75)
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	6100	6100
	Cooling power input (actual/label)	W	2100	2150
	Heating current input (actual/label)	A	9.5	9.6
	EER (actual/label)	W/W	2.90	2.84
Heating	Heating capacity (actual/label)	W	6300	6100
	Heating power input (actual/label)	W	2000	2100
	Heating current input (actual/label)	A	9.1	9.4
	COP (actual/label)	W/W	3.15	2.90
Max. input consumption		W	3200	3200
Max. current		A	16.5	16.5
Compressor	Model		PA240X2CS-4KU1	PA240X2CS-4KU1 TOSHIBA
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	Toshiba
	Capacity	W	5800	5800
	Power input	W	1985	1985
	Starting current---(LRA) locked-rotor current LRA	A	36.8	9.02
	Running current RLA	A	9.3	
	protector type (internal /external)		internal	internal
	capacity	uF-V	50/370	50
	Refrigeration lubricating oils,oil	ml	ESTER OIL VG74 750ml	

		charge			
indoor unit	Fan motor	Model		YDK-27-4 A6	YDK-26-4 A6
		Power input	W	56	56
		capacity	uF	1.8	1.8
		Indoor Fan Speed RPM (High/Med/Low)	r/min	Hi:: 1300±20rpm Med:: 1200±30rpm low: : 1100±40rpm	1300/1200/1080
	Indoor fan	dia.*length	mm	φ102x710	φ101.5x761
		Rows*Tubes*Circuits		2*20*5	2*18
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6	20.4*12.7*1.45
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	705*375*25.4 705*126*12.7	766*252*25.4 747*126*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	900	750
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	42-46	43-47
	Dimension (L*W*H)		mm	900*292*215	1000×320×200
	Packing (L*W*H)		mm	990*377*300	1085×380×285
	Net/Gross weight		Kg	14/17	15/18
Outdoor unit	Fan motor	Model		YDK-40-6A 1	YDK-40-6A 1
		Power input	W	106	105
		capacity	uF	3	3
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	870	870
	Outdoor fan	dia.*length	mm	Φ415	
	condensor	Rows*Tubes*Circuits		2*22*	2*22
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.6	25*22*1.6

	Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe
	Coil size :length x height x width	mm	766*550*22 801*550*22	764*554*22 798*554*22
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	54	56
	Dimension size (L*W*H)	mm	850×295×605	850×295×605
	Packing size(L*W*H)	mm	995×410×680	995×410×680
	Net/Gross weight	Kg	44/50	44/50
	Refrigerant type/weight	g	R410A/1900	R410A/1930g
	Design pressure (Hi/Low)	MPa	4.0-1.2	4.0-1.2
Refrigerant piping	Liquid side/ Gas side/Length	mm	φ6.35+φ12.7×4000	φ6.35+φ12.7×4000
	Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

机型 Model			CS-70H3A-T**AS	CS-70H3A-W**ASA(EER≥2.75)
Rated volt and frequency		Ph-V-Hz	220-240V/50Hz	220-240/50
Cooling	Cooling capacity (actual/label)	W	7000	7200
	Cooling power input (actual/label)	W	2300	2250
	Heating current input (actual/label)	A	11	10.1
	EER (actual/label)	W/W	3.04	3.20
Heating	Heating capacity (actual/label)	W	7100	7400
	Heating power input (actual/label)	W	2400	2160
	Heating current input (actual/label)	A	11.5	9.7
	COP (actual/label)	W/W	2.96	3.43
Max. input consumption		W	3600	3700

Max. current		A	19.6	18
Compressor	Model		PA270X3CS-4MU2	PA270X3CS-4MU2
	Type (Rotary、piston 、scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	7180/7210	6650
	Power input	W	2430/2540	2270
	Starting current---(LRA) locked-rotor current LRA	A	61/63	
	Running current RLA	A	11.04/11.54	10.32
	protector type (internal /external)		internal	internal
	capacity	uF-V	50-400	50/400
	Refrigeration lubricating oils,oil charge	ml		
indoor unit	Fan motor	Model	YDK-32-4	YDK-30-4
		Power input	W	80
		capacity	uF	3.5
		Indoor Fan Speed RPM (High/Med/Low)	r/min H: 1300±30 rpm M: 1220±30 rpm L: 1150±30 rpm	1350/1200/1050
	Indoor fan	dia.*length	mm	φ107.5×799
		Rows*Tubes*Circuits		2*18*
		Tube pitch* row pitch*Fin spacing	mm	17.6*13*1.35
		Tube outside dia.and typ	mm	φ7internal threaded pipe
		Coil length x height x width	mm	797*212*26 766*106*26
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	950
				1050

	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	49/47/45	42-48
	Dimension (L*W*H)		mm	1020×320×210	1080*308*225
	Packing (L*W*H)		mm	1130×390×295(无附件) 1235×390×295(有附件)	1275*392*318
	Net/Gross weight		Kg	14/16	16/20
Outdoor unit	Fan motor	Model		YDK-60A-6F	YDK-60A-6F
		Power input	W	125	145
		capacity	uF	4	4
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	770	850
	Outdoor fan	dia.*length	mm	φ460×180	φ460×180
	condensor	Rows*Tubes*Circuits		2*26*	2*26
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.8	25*22*1.8
		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe
		Coil size :length x height x width	mm	728*650*22 762*650*22	728**650*22 762*650*22
	Outdoor Noise Level dB (High/Low) (actual/label)		dB(A)	56	56
	Dimension size (L*W*H)		mm	870×310×700	875×315×680
	Packing size(L*W*H)		mm	990×410×780	990×410×775
	Net/Gross weight		Kg	58/65	58/62
	Refrigerant type/weight		g	R410A/2100	R410A/1850
	Design pressure (Hi/Low)		MPa	4.0/1.2	4.0-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ9.52+φ16×5000	φ9.52+φ16×5000
		Max. refrigerant pipe length /Max. difference in level	m	15/5	15/5

机型 Model			CSS-70H3A-W**ASA	KFR-70GW/X1c(EER≥2.75)
Rated volt and frequency		Ph-V-Hz	220-240/50	220-240V/50Hz
Cooling	Cooling capacity (actual/label)	W	7000	7000
	Cooling power input (actual/label)	W	2250	2300
	Heating current input (actual/label)	A	10.1	10.3
	EER (actual/label)	W/W	3.11	3.04
Heating	Heating capacity (actual/label)	W	7200	7500
	Heating power input (actual/label)	W	2220	2330
	Heating current input (actual/label)	A	10	10.4
	COP (actual/label)	W/W	3.24	3.22
Max. input consumption		W	3700	3600
Max. current		A	18	19.5
Compressor	Model		PA270X3CS-4MU2	PA270X3CS-4MU2
	Type (Rotary、piston 、 scroll)		Rotary	Rotary
	Brand		TOSHIBA	TOSHIBA
	Capacity	W	6650	6650
	Power input	W	2270	2270
	Starting current---(LRA) locked-rotor current LRA	A		10.32
	Running current RLA	A	10.32	
	protector type (internal /external)		internal	internal
	capacity	uF-V	50/400	50/400
	Refrigeration lubricating oils,oil	ml		

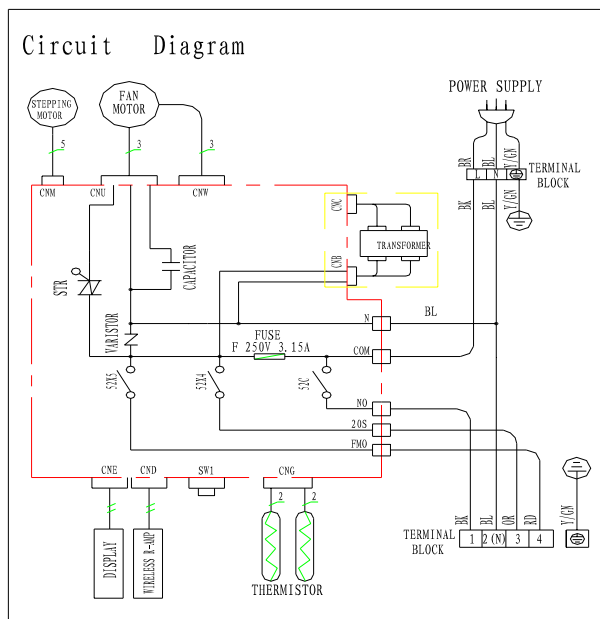
		charge			
indoor unit	Fan motor	Model		YDK-30-4	YDK-38-4
		Power input	W	63	82
		capacity	uF	2	3.5
		Indoor Fan Speed RPM (High/Med/Low)	r/min	1350/1200/1050	H: 1330±20 rpm M: 1200±20 rpm L: 1050±20 rpm
	Indoor fan	dia.*length	mm	φ102×880	φ108×811
		Rows*Tubes*Circuits		2*17*	2*20*5
		Tube pitch* row pitch*Fin spacing	mm	21*12.7*1.6	20.4*12.7*1.4
		Tube outside dia.and typ	mm	φ7internal threaded pipe	φ7internal threaded pipe
		Coil length x height x width	mm	875*357*25.4	815*408*25.4
	Indoor Air Circulation (High/Med/Low) (actual/label)		m3/h	1050	1050
	Indoor Noise Level dB (High/Low) (actual/label)		dB(A)	42-48	43-49
	Dimension (L*W*H)		mm	1080*308*225	1070×325×250
	Packing (L*W*H)		mm	1275*392*318	1175×305×395
	Net/Gross weight		Kg	16/20	18/21
Outdoor unit	Fan motor	Model		YDK-60A-6F	YDK-60A-6F
		Power input	W	145	145
		capacity	uF	4	4
		Outdoor Fan Speed RPM (High/Med/Low)	r/min	850	850
	Outdoor fan	dia.*length	mm	φ460×180	φ460×180
	condensor	Rows*Tubes*Circuits		2*26	2*26
		Tube pitch* row pitch*Fin spacing	mm	25*22*1.8	25*22*1.8
		Tube outside dia.and typ	mm	φ9.52internal threaded pipe	φ9.52internal threaded pipe

	Coil size :length x height x width	mm	728**650*22 762*650*22	728**650*22 762*650*22
	Outdoor Noise Level dB (High/Low) (actual/label)	dB(A)	56	56
	Dimension size (L*W*H)	mm	875×315×680	875×315×680
	Packing size(L*W*H)	mm	990×410×775	990×410×775
	Net/Gross weight	Kg	58/62	58/62
	Refrigerant type/weight	g	R410A/1850	R410A/2100
	Design pressure (Hi/Low)	MPa	4.0-1.2	4.0-1.2
Refrigerant piping		Liquid side/ Gas side/Length	mm	φ9.52+φ16×5000
		Max. refrigerant pipe length /Max. difference in level	m	15/5

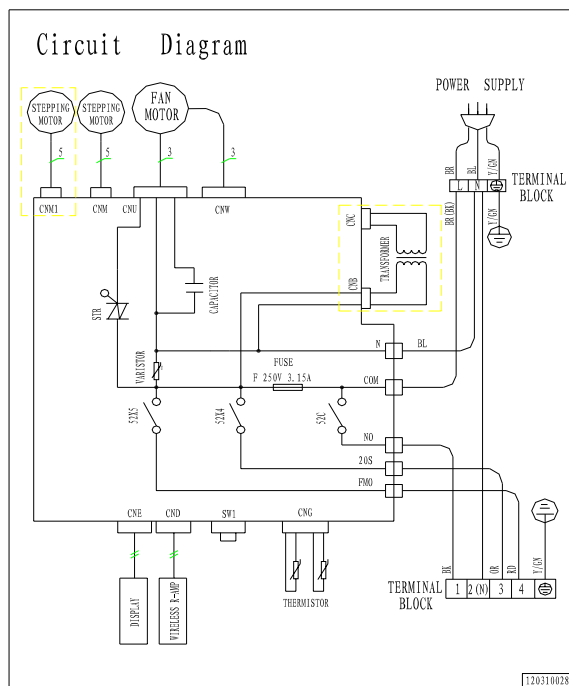
7.Wiring diagrams

7.1Indoor unit

KFR-25GW/AGX1c、KFR-35GW/AGX1c、KFR-51GW/BGX1c (38)

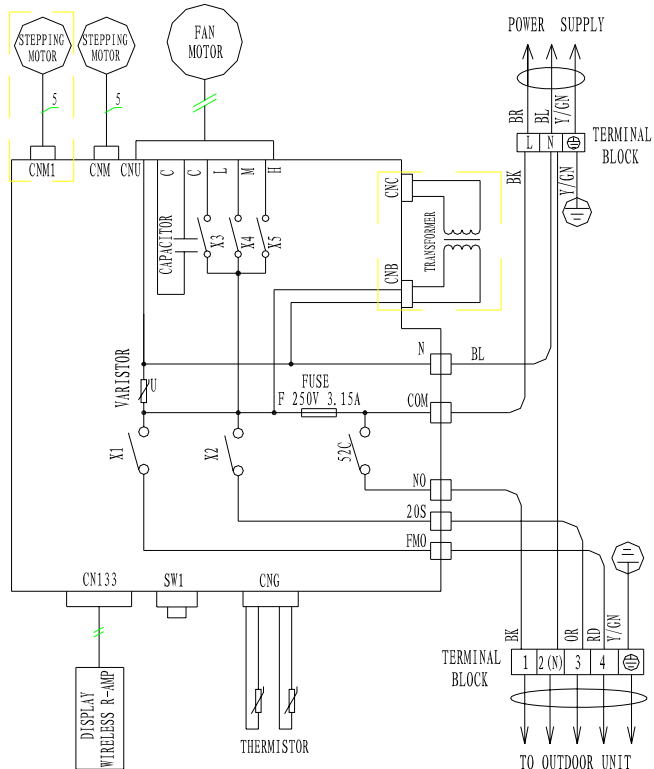


CS-25H3A-V85AY1、CS-35H3A-M85AH4



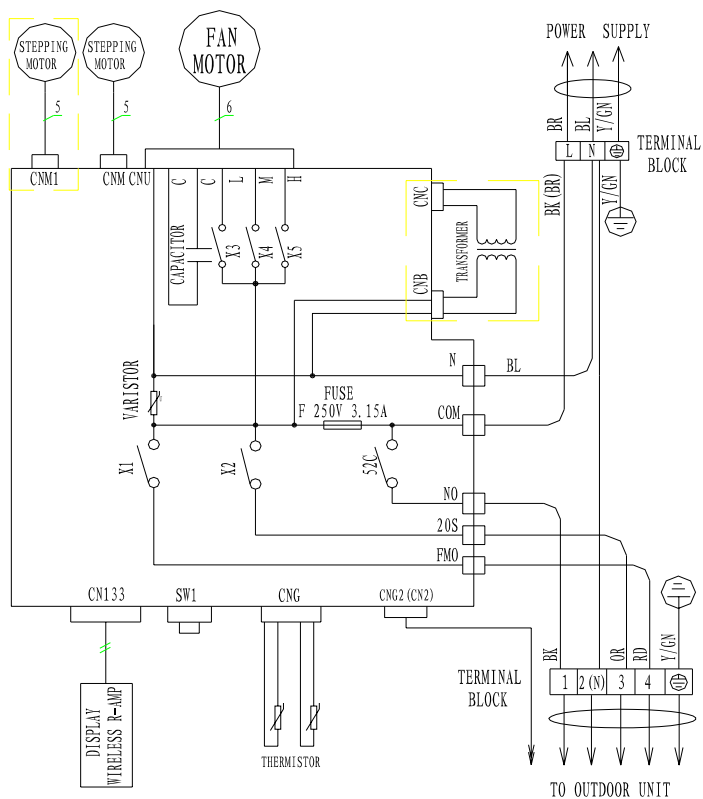
CS-51H3A-P**AH4A (85)

Circuit Diagram

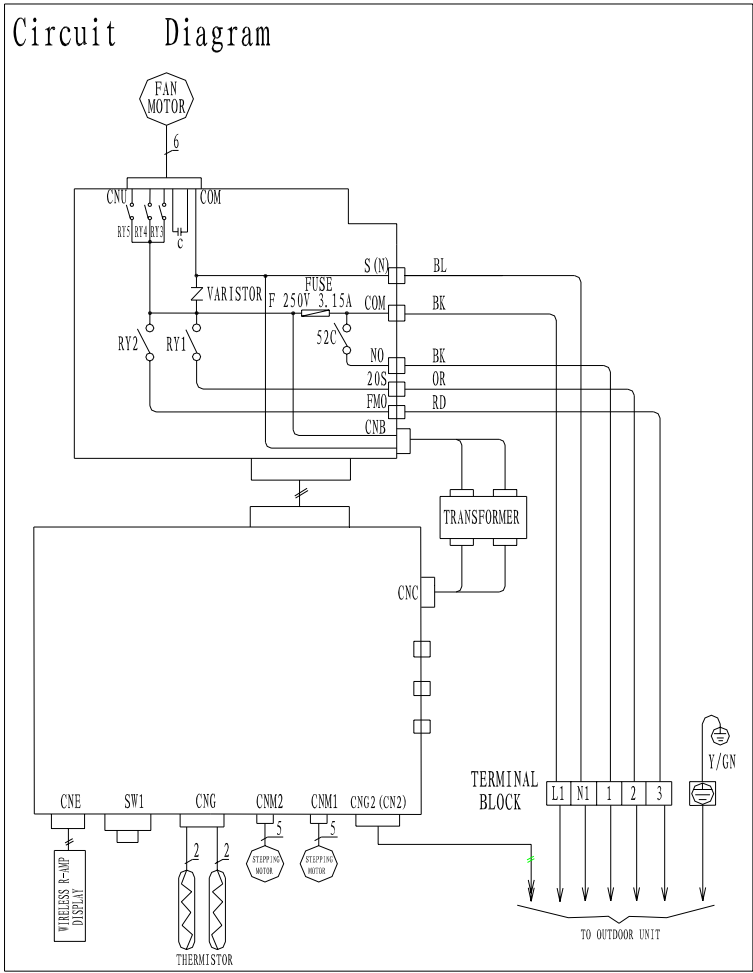


CS-61H3A-P85AE2 (85)

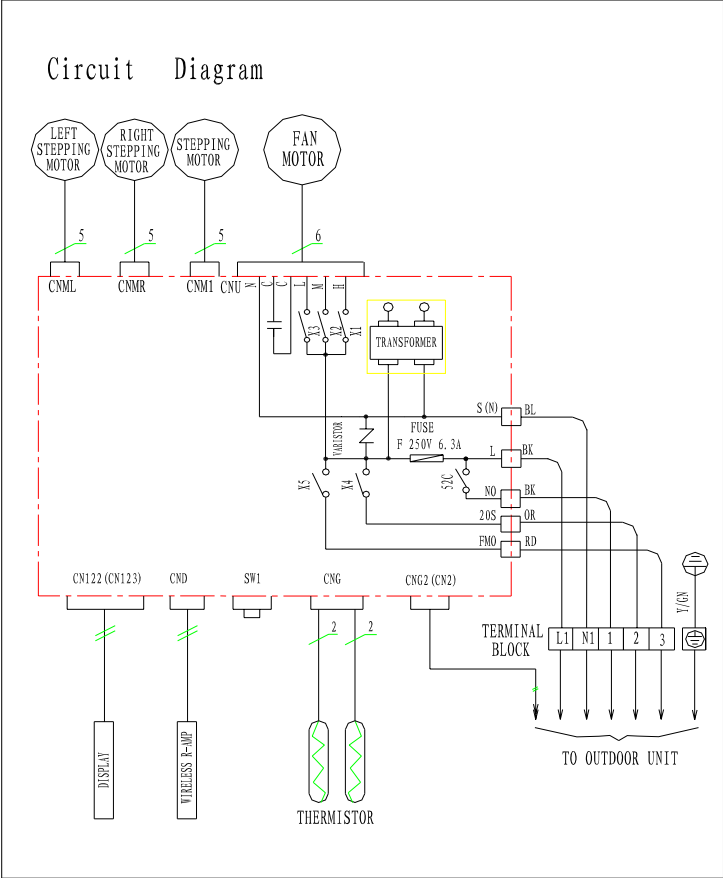
Circuit Diagram



CS-70H3A-T**AS (38)

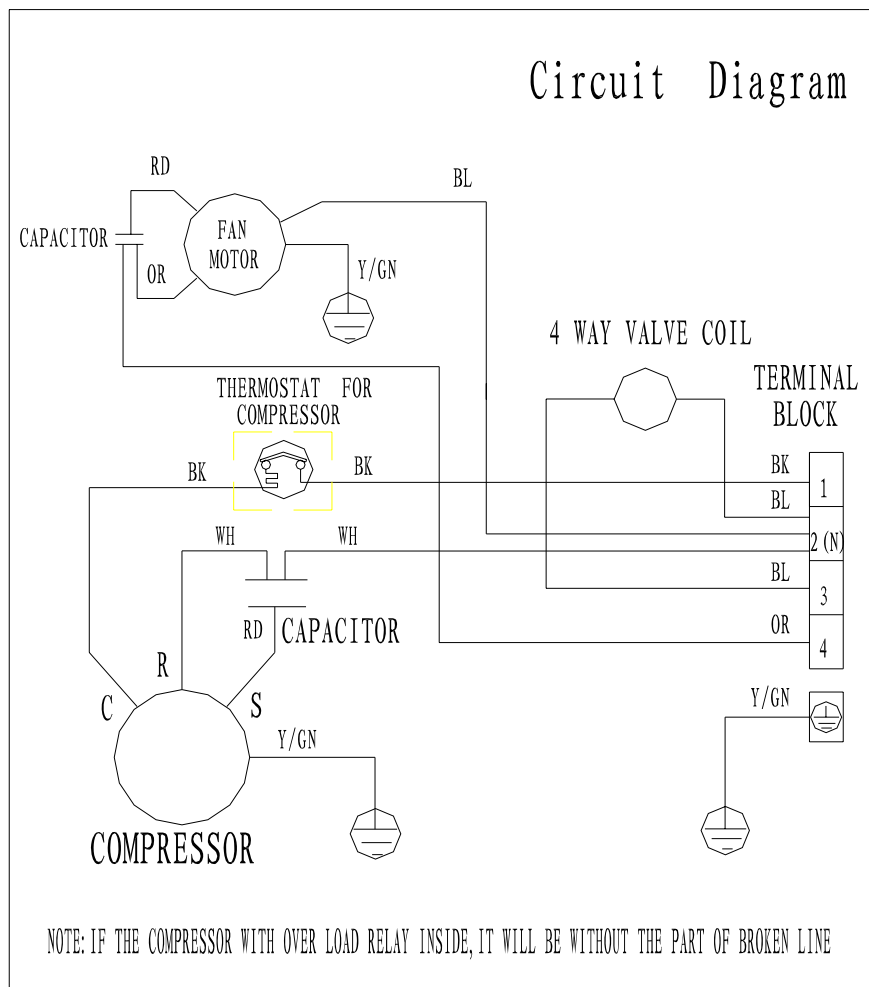


KFR-70GW/X1c (85)

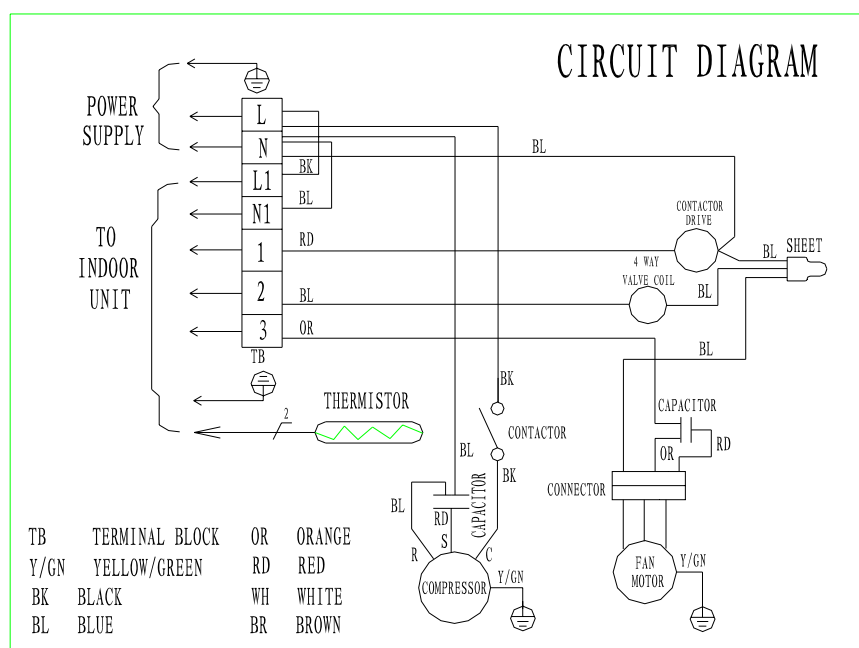


7.2 Outdoor uni

KFR-25GW/AGX1c、CS-25H3A-V**AY1、KFR-35GW/AGX1c、CS-35H3A-M**AH4、KFR-51GW/BGX1c、CS-51H3A-P**AH4A、CS-61H3A-P85AE2

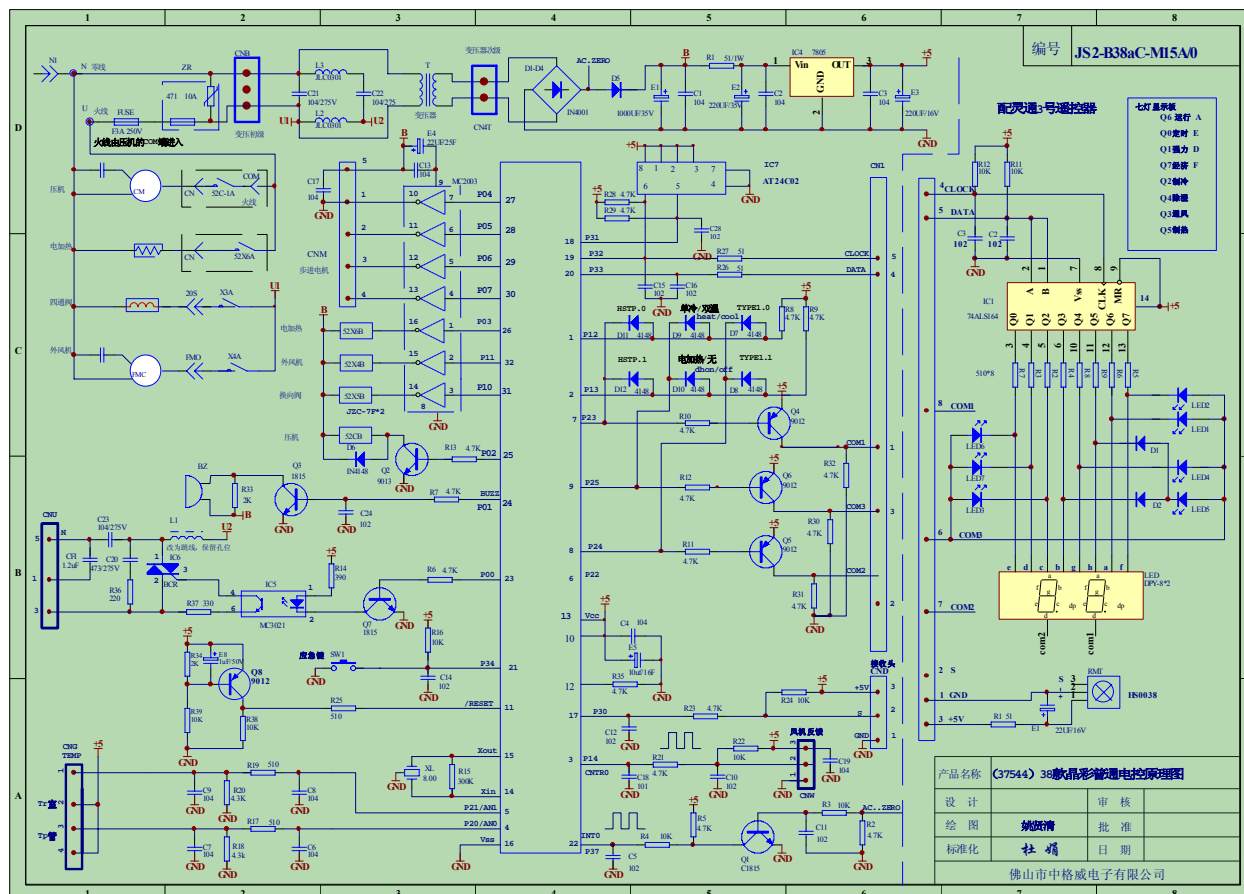


CS-70H3A-T**AS、KFR-70GW/X1c

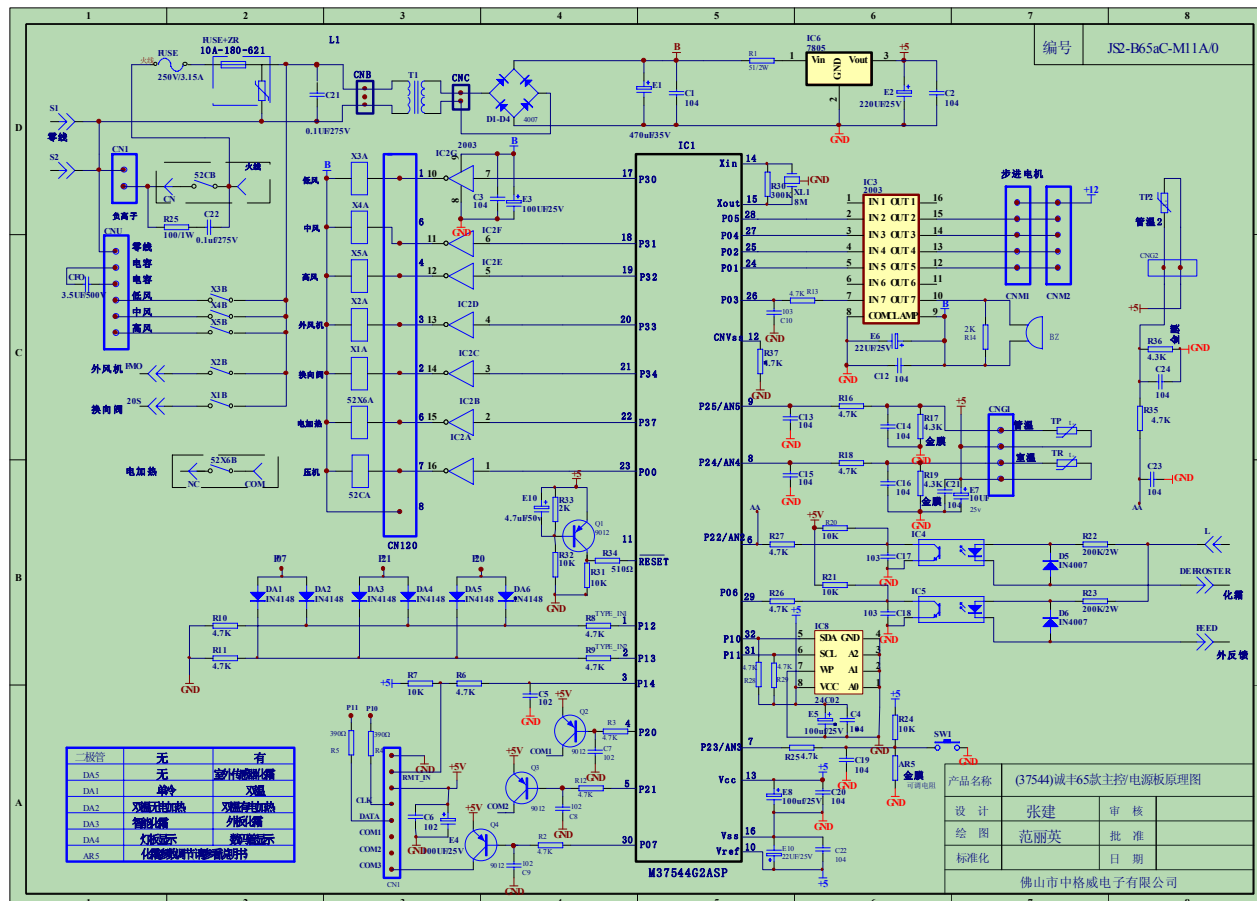


8.PCB principle chart

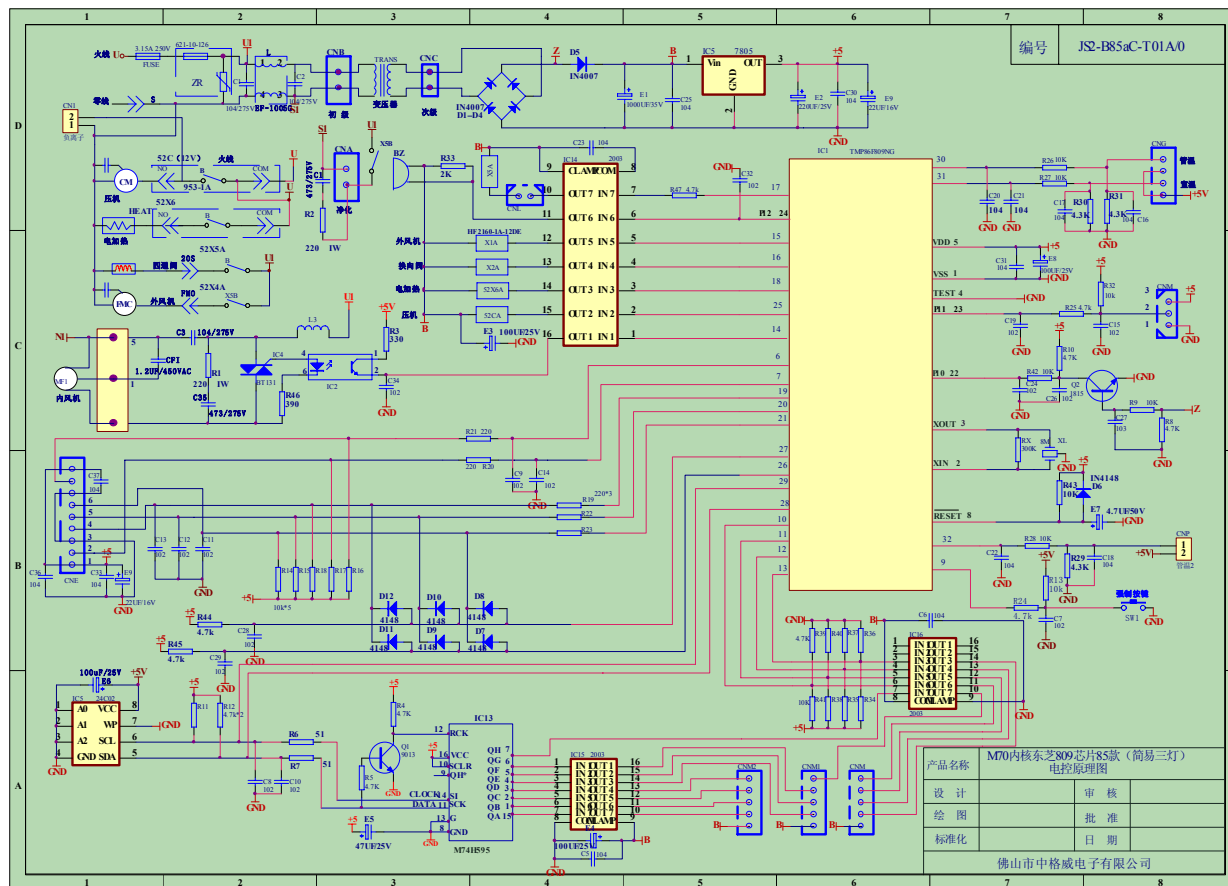
8.1、38 section of crystal color ordinary schematic diagram



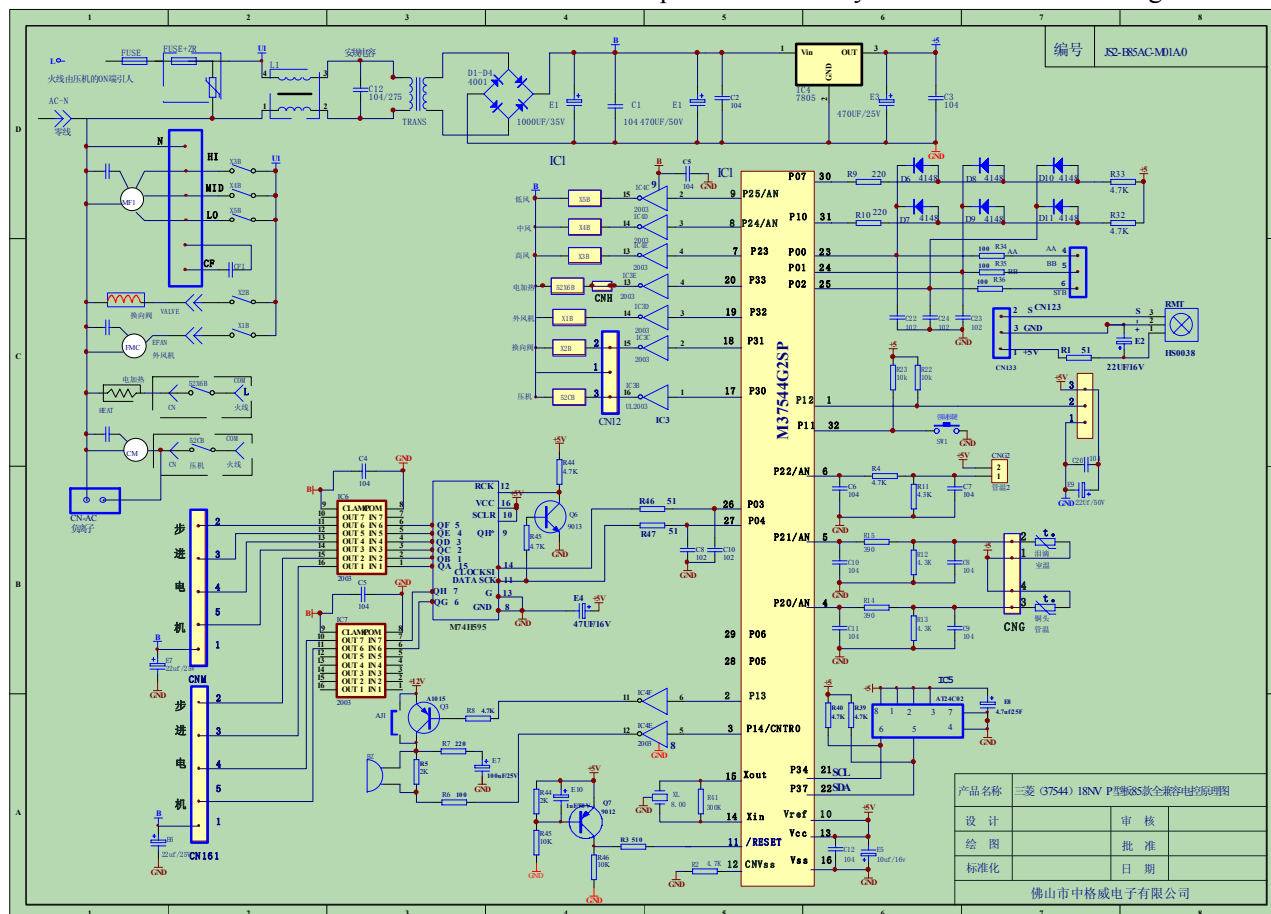
8.2、65 Mitsubishi main chip schematic diagram



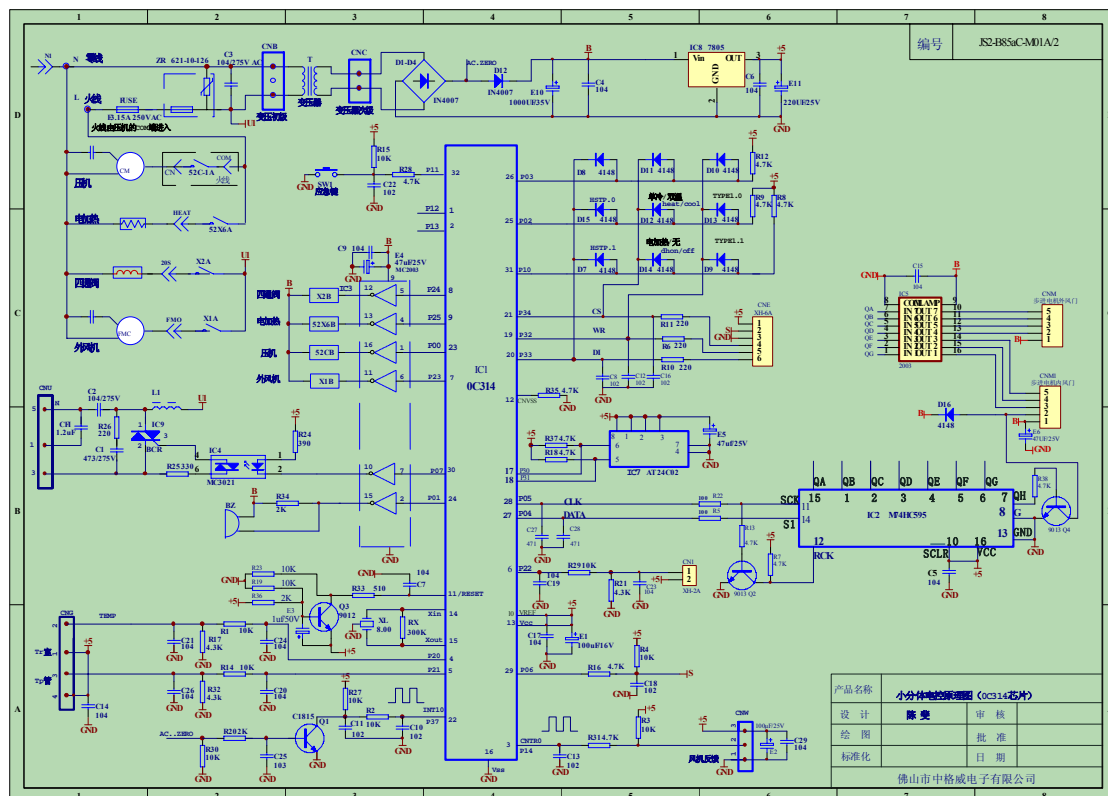
8.3、85 section of schematic diagrams



8.4、Three water chestnut 18NV 85 section of entire compatible electrically controlled schematic diagrams



8.5、Mitsubishi Jin dynasty 85 model of simple three lamp electrically controlled motherboards



9. PCB function:

NOTE: Ts is the set temperature, Tr is indoor room temperature, TP1 is indoor coil pipe temperature, TP2 is outdoor coil pipe temperature.

Display panel

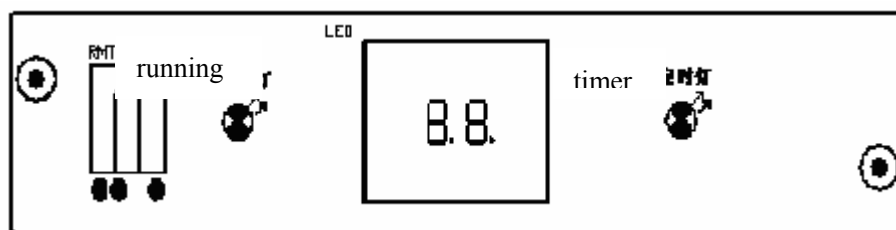
[1]only two LED

- ①running lamp(green): power on light, flash one time/ one second during anti cooled wind.
- ②timer lamp(yellow): only light at timer state.

[2]eleven LED

- ① running lamp(green): power on light, flash one time/ one second during anti cooled wind.
- ②temperature lamp(green): 16~31℃ set temp. and room temp. display, light is set temp. flash is set temp.

[3]two LED and two 8LED

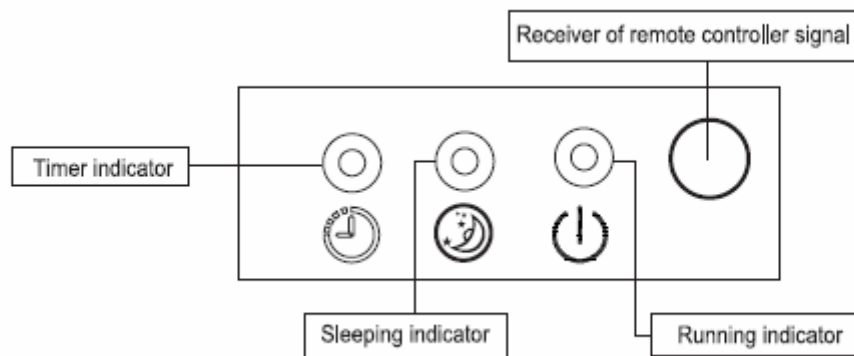


- ① running lamp(green): power on light, flash one time/ one second during anti cooled wind.
- ② timer lamp(yellow): only light at timer state.

③8LED display set temp., also it can display timer time and failure code.

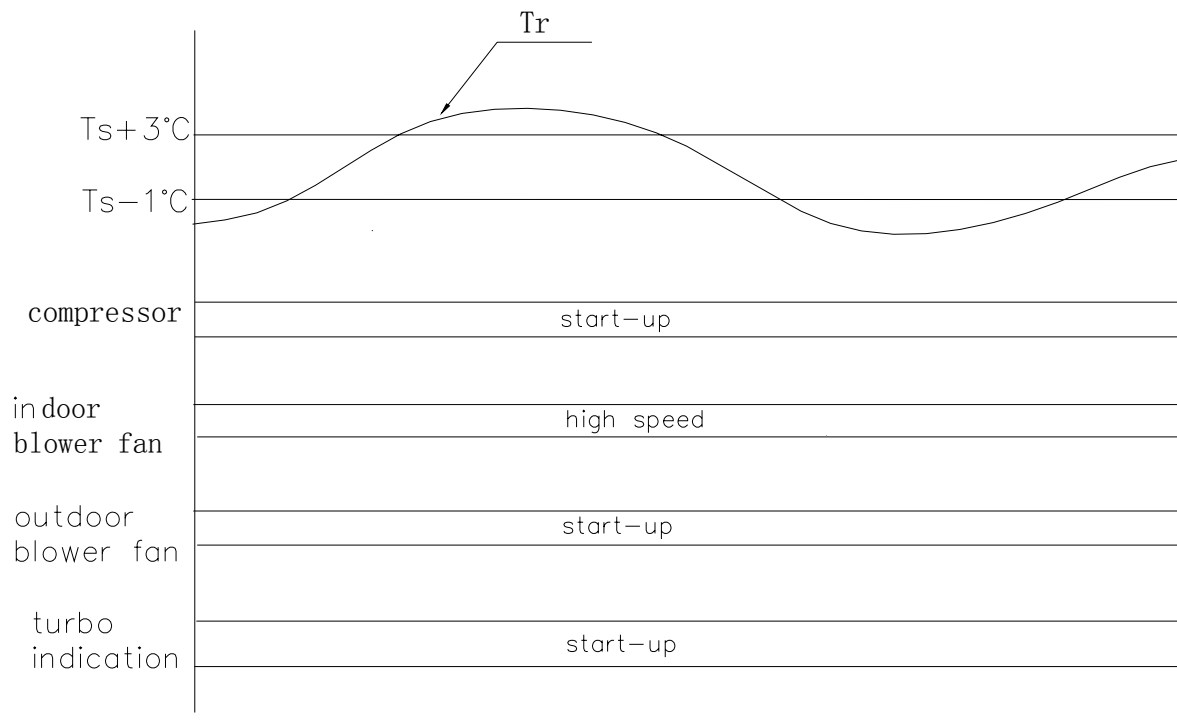
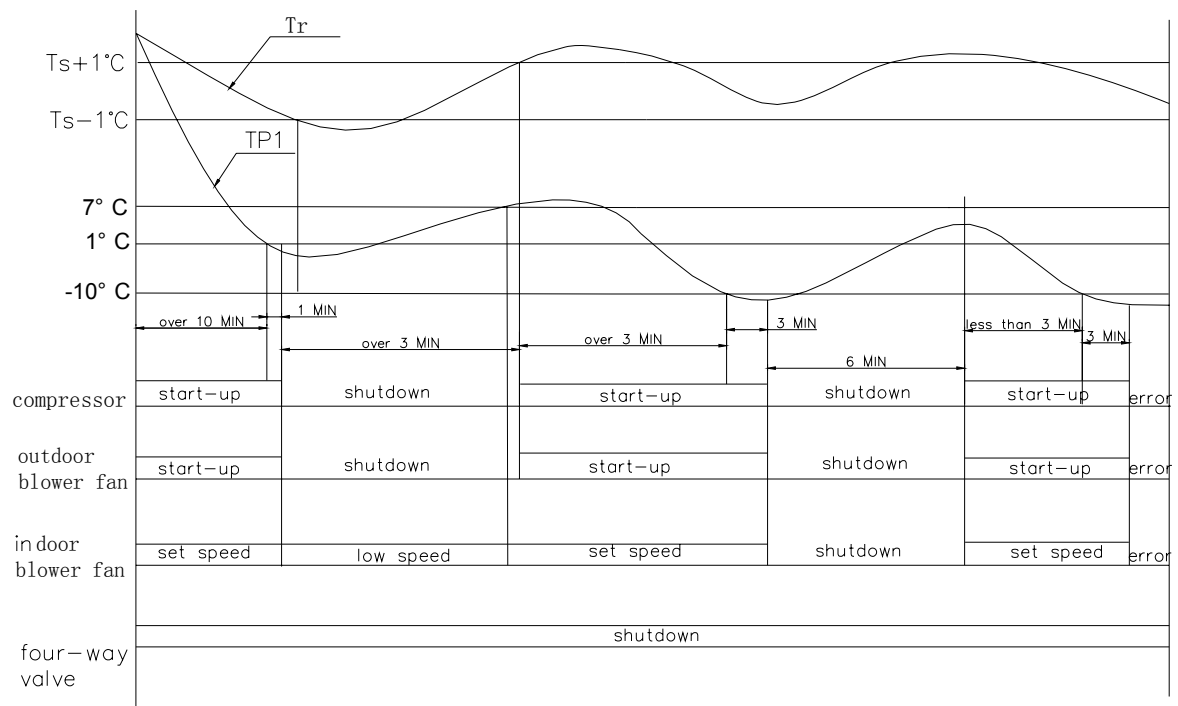
[4]LED multi-colour panel

①according to display mode: dehumidification, cooling, ventilation, heating, auto, sleep, fan speed, swing, timer, indoor fan running.



Cooling

- Start up the compressor: when the room temperature is more than $T_s+1^{\circ}\text{C}$, compressor \rightarrow start-up
- Shut down the compressor: when the room temperature is less than or equal to the set temperature $T_s-1^{\circ}\text{C}$, compressor \rightarrow shutdown
- When the temperature of coil pipe of the indoor units is less than or equal to 1°C for one minute and the compressor has continuous run for more than ten minutes, the compressor and outdoor blower fan shut down through the electric control board and the indoor blower fan is running at low speed.
- When the temperature of coil pipe of the indoor units is more than or equal to 7°C and the compressor has shutdown for more than three minutes, the compressor and outdoor blower fan start to run and the indoor blower fan is running at set speed.
- When the temperature of coil pipe of the indoor units is equal to or less than -10°C for three minutes in the compressor has continuous run for three minutes, the compressor, indoor and outdoor blower fans and swinging wind shut down. Restart up six minutes later; if the above situations appear again within six minutes, all the outputs are shut down through the electric control board and display failure.
- When you press turbo button of remote, the air conditioner enter turbo running, compressor and outdoor blower fan turn on all along, indoor blower fan run at high speed, turbo indication is light.
- After the compressor runs five minutes, the lamp flashes 4 times per six seconds or display E4 if the temperature of indoor coil pips is more than 25°C in the continuous 20 minutes. The controller will automatically shut down if the temperature of indoor coil pips is more than 25°C in another continuous 20 minutes, that is the abnormality protection of outdoor units and the indicator lamp keeps its former state of flashing. If the temperature of indoor coil pips is less than 25°C in the second 20 minutes or the compressor shuts down, the electric control board will store to the normal display and the time is restarted when starting up the compressor next time.



Heating (only applicable to heat pump units)

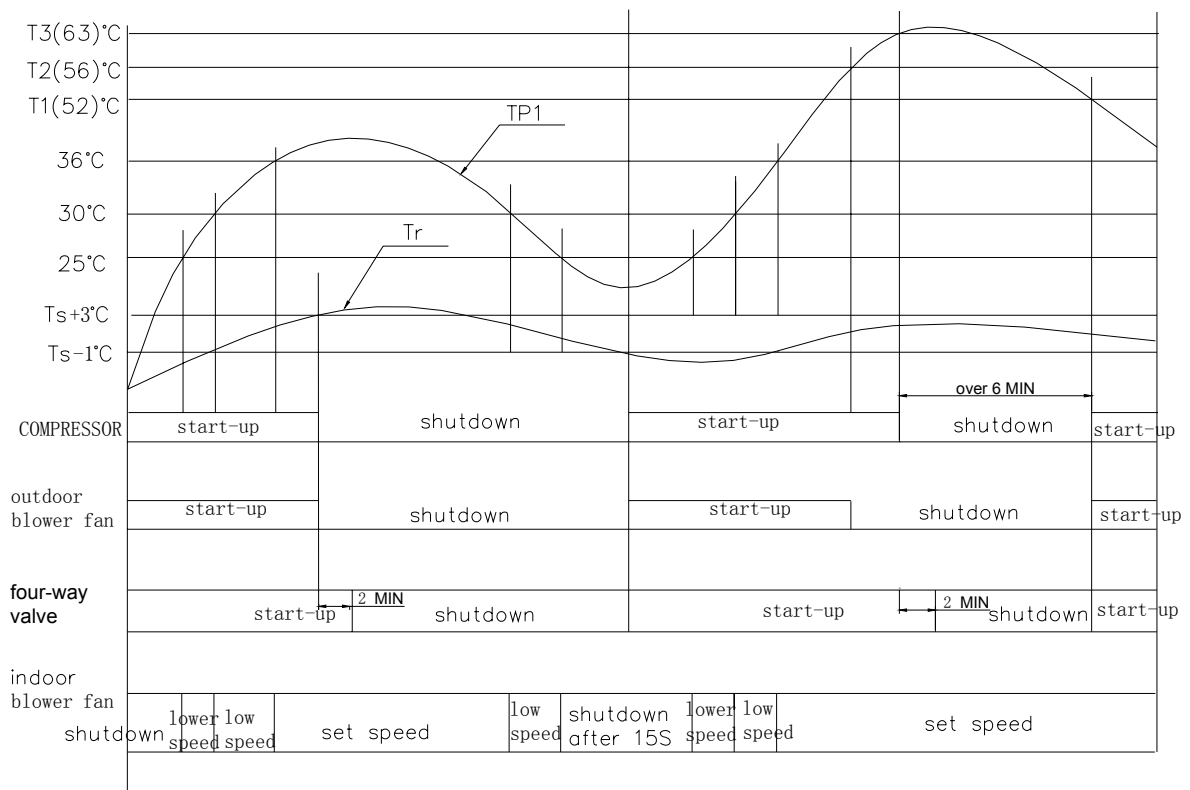
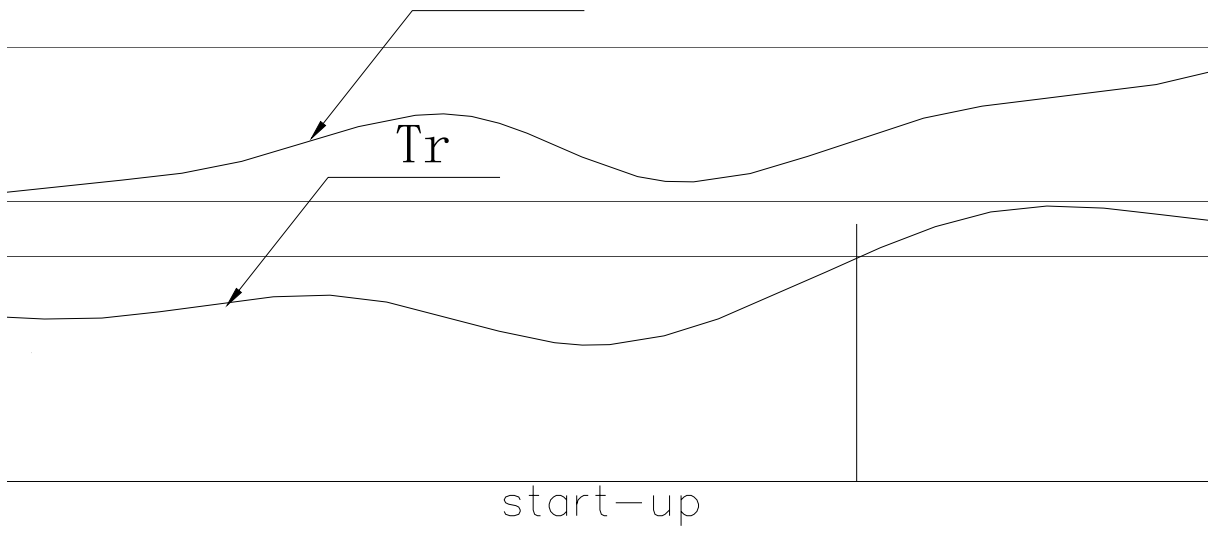
- Start up the compressor: when the room temperature is less than $T_s-1^\circ\text{C}$, compressor \rightarrow start-up
- Shut down the compressor: when the room temperature is more than or equal to the set temperature $T_s+3^\circ\text{C}$, compressor \rightarrow shutdown
- The electric heating start-up in the heating mode shall meet the following conditions: ① start up the compressor

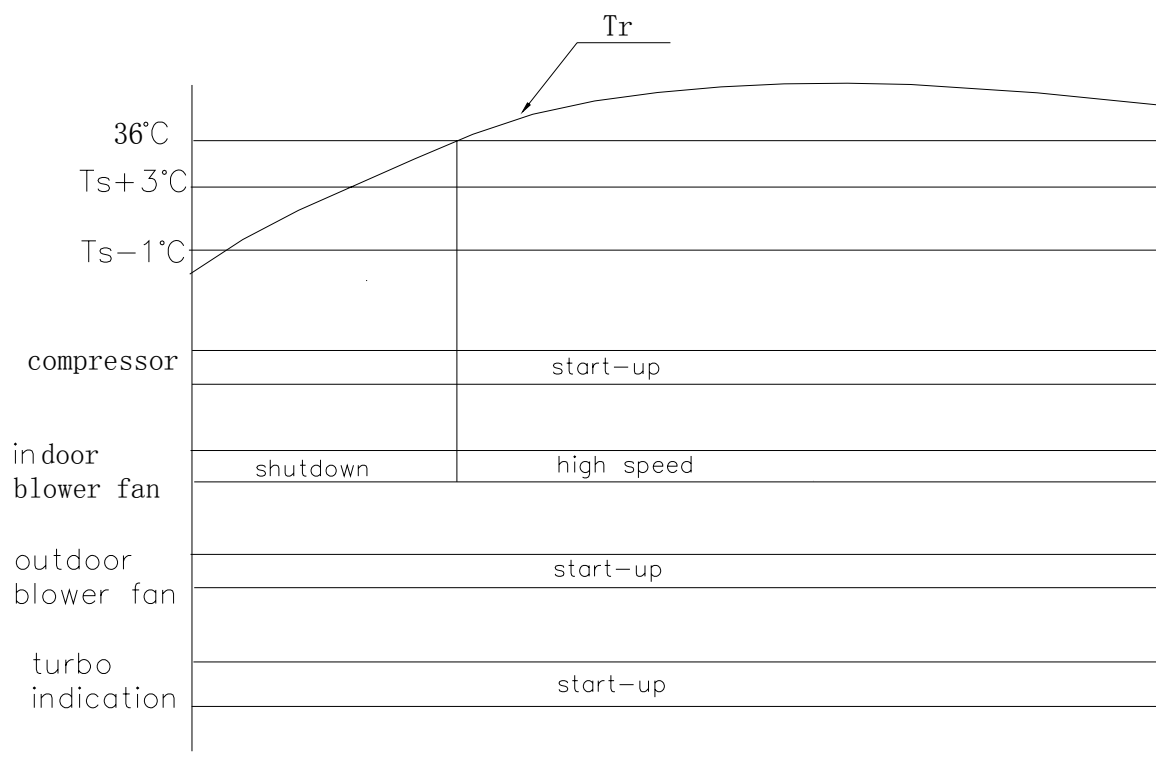
and indoor blower fan ② none defrost ③ $TP1 < 49^{\circ}\text{C}$ ④ $Tr \leq 20^{\circ}\text{C}$.

- The electric heating shutdown in the heating mode shall meet one of the following conditions: ① shutdown indoor blower fan ② $Tr \geq 23^{\circ}\text{C}$ ③ $TP1 \geq 50^{\circ}\text{C}$.
- In the heating mode, the indoor flower fan can be set as high/ medium/ low /automatic running mode by remote control however the anti cool air function is prior. In the heating mode, the anti cool air control function is to control shutdown of the indoor blower fan by detecting the temperature of coil pipe of evaporator so as to attain the purpose of preventing cold air from blowing.
- For the waste heat emission function in the heating mode, in principle, the indoor blower fan shall be on for fifteen seconds after the electric heating is closed.
- When the temperature of coil pipe of indoor units is more than or equal to 56°C , the outdoor blower fan shuts down and it enters the overload protection; when the temperature of coil pipe of indoor units is less than or equal to 52°C , the outdoor blower fan starts up and it exit the overload protection.
- When the temperature of coil pipe of indoor units rises to 63°C , the compressor and outdoor blower fan are closed and two minutes later, the change valve is closed. The indoor blower fan is running at the set speed. Restart up six minutes later; if the above situations appear again within ten minutes, all the outputs are shut down through the electric control board and display failure.
- When you press turbo button of remote, the air conditioner enter turbo running, compressor ,outdoor blower fan and four-way valve turn on all along, indoor blower fan run at high speed and it must meet start condition, turbo indication is light.
- After the compressor runs five minutes, the lamp flashes 4 times per six seconds or display E4 if the temperature of indoor coil pips is less than 30°C (heating) in the continuous 20 minutes. The controller will automatically shut down if the temperature of indoor coil pips is less than 30°C in another continuous 20 minutes, that is the abnormality protection of outdoor units and the indicator lamp keeps its former state of flashing.

Tr

TP1





Defrost (only applicable to the heating mode)

1. the intelligent defrost

In the heating mode, the electric control board checks and compares the temperature of indoor room and indoor coil pipe after the compressor works for a while; judge whether the outdoor heat exchanger part is frosted or not according to conditions such as the change of indoor coil pipe temperature; if it is judged as frosted, it automatically enters defrosting process. When defrosting, close the indoor and outdoor blower fan and four-way valve.

2. Outdoor PCB for defrost.

In the heating mode, the unit defrost by outdoor control board:

①unit start defrost shall all meet the following conditions:

- a、compressor continuous running over 7 minutes;
- b、defrost relay shut off; (-5°C)
- c、compressor cumulate running time over 50 minutes.;

②first defrost interval time is 50 minutes, later defrost interval time decided by last defrost time.

Defrost time(minute)	Next defrost interval time(minute)
15	30
10--15	40
7--10	60
3--7	70
≤ 3	80

(2) end defrost condition(meet one of follows)

- a、defrost time have fifteen minutes.
- b、defrost relay turn on; ($>8^{\circ}\text{C}$)
- c、press ON/OFF key in defrost process.

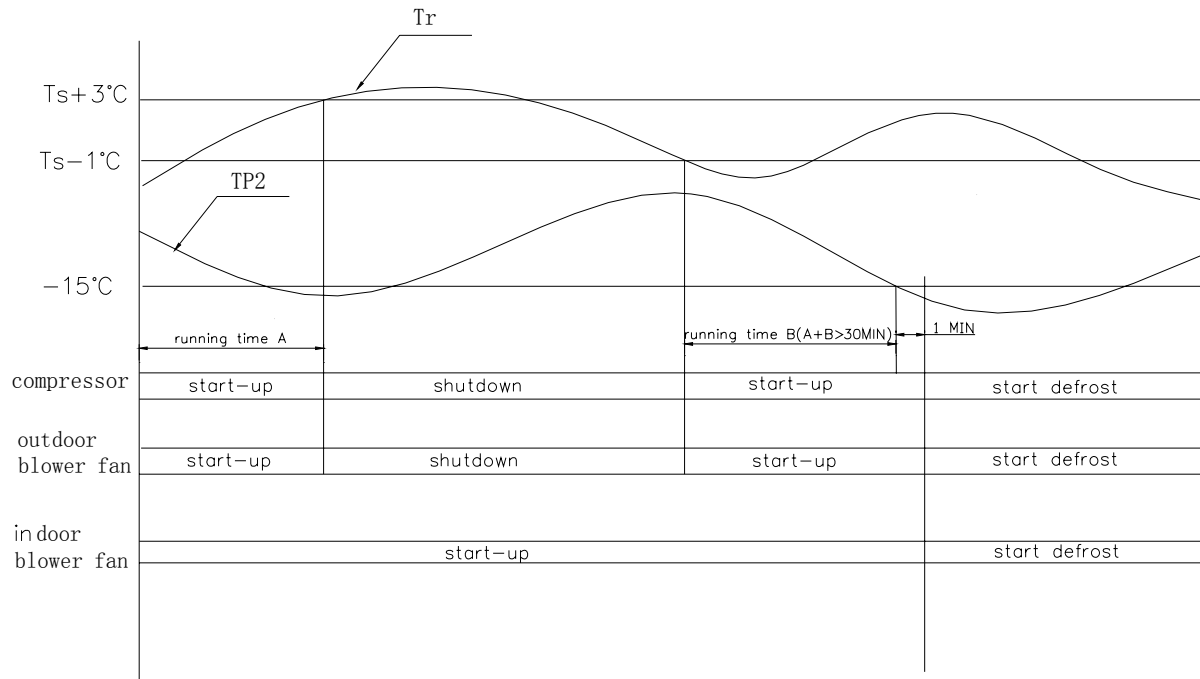
3. Outdoor sensor for defrost

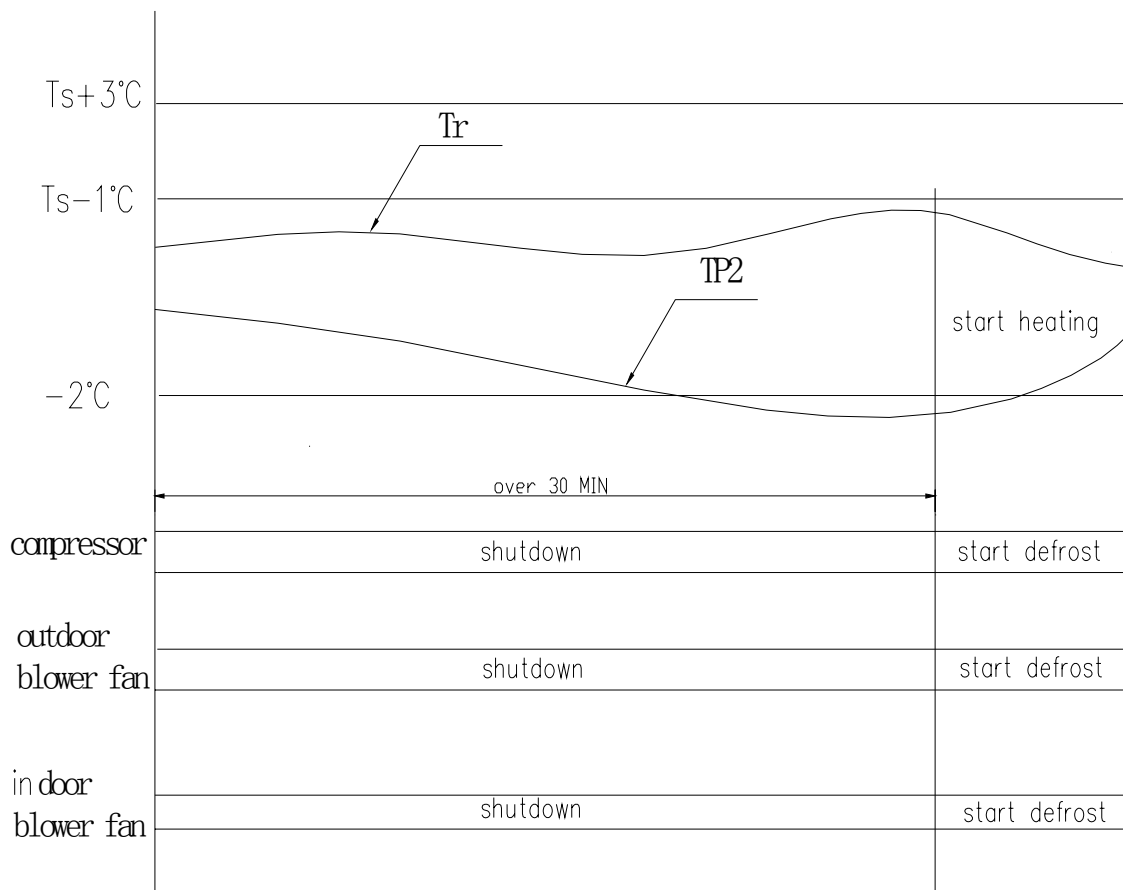
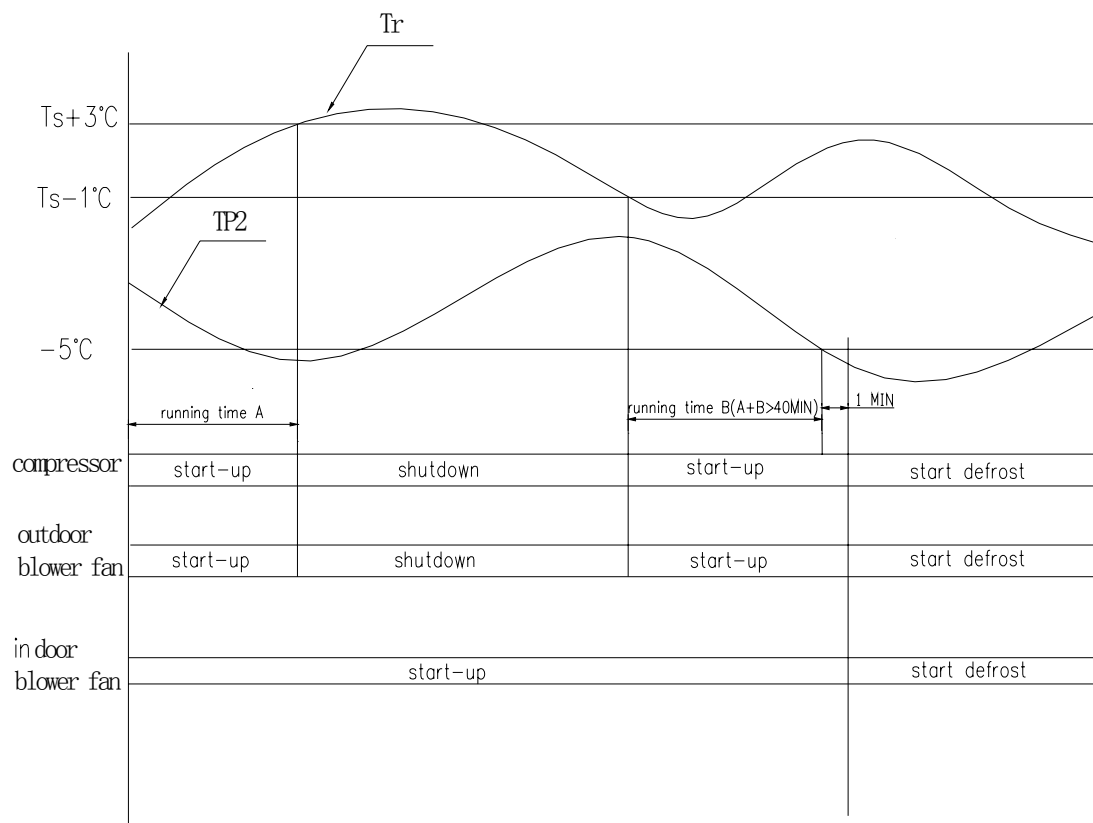
① unit start defrost shall meet one of the following conditions:

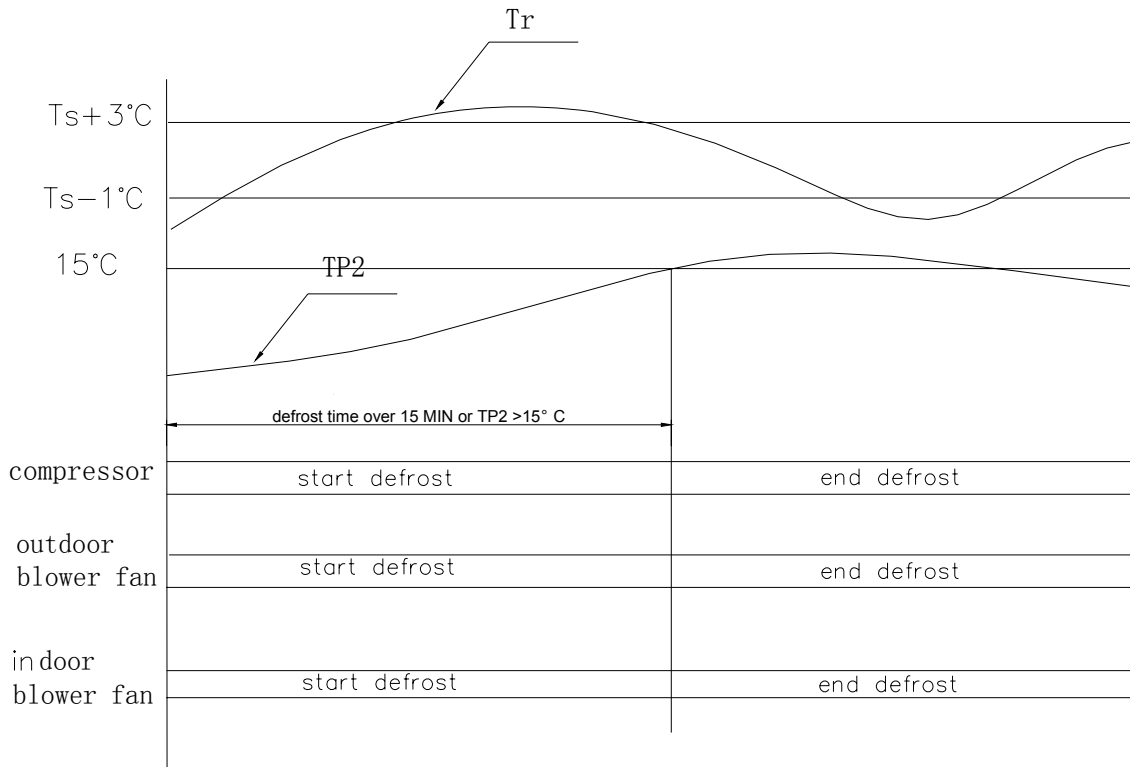
- compressor cumulate running time over 30 minutes and it continuous running over 3 minutes, the temperature of coil pipe of the outdoor units is equal to or less than -15°C for one minutes ($\text{Tp}_2 \leq -15^{\circ}\text{C}$).
- compressor cumulate running time over 40 minutes and it continuous running over 3 minutes, the temperature of coil pipe of the outdoor units is equal to or less than -5°C for one minutes ($\text{Tp}_2 \leq -15^{\circ}\text{C}$).
- Air conditioner first power on or it wait over 30 minutes ,the temperature of coil pipe of the outdoor units is equal to or less than -2°C ($\text{Tp}_2 \leq -15^{\circ}\text{C}$)

②end defrost condition(meet one of follows)

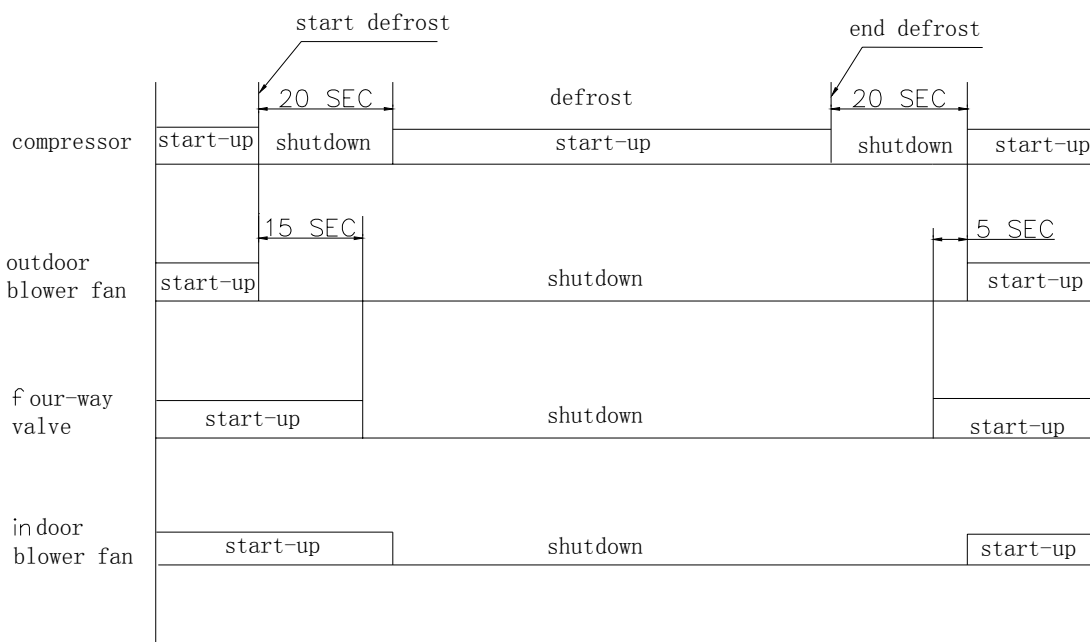
- the temperature of coil pipe of the outdoor units is more than 15°C ($\text{Tp}_2 \geq -15^{\circ}\text{C}$).
- defrost time have fifteen minutes.





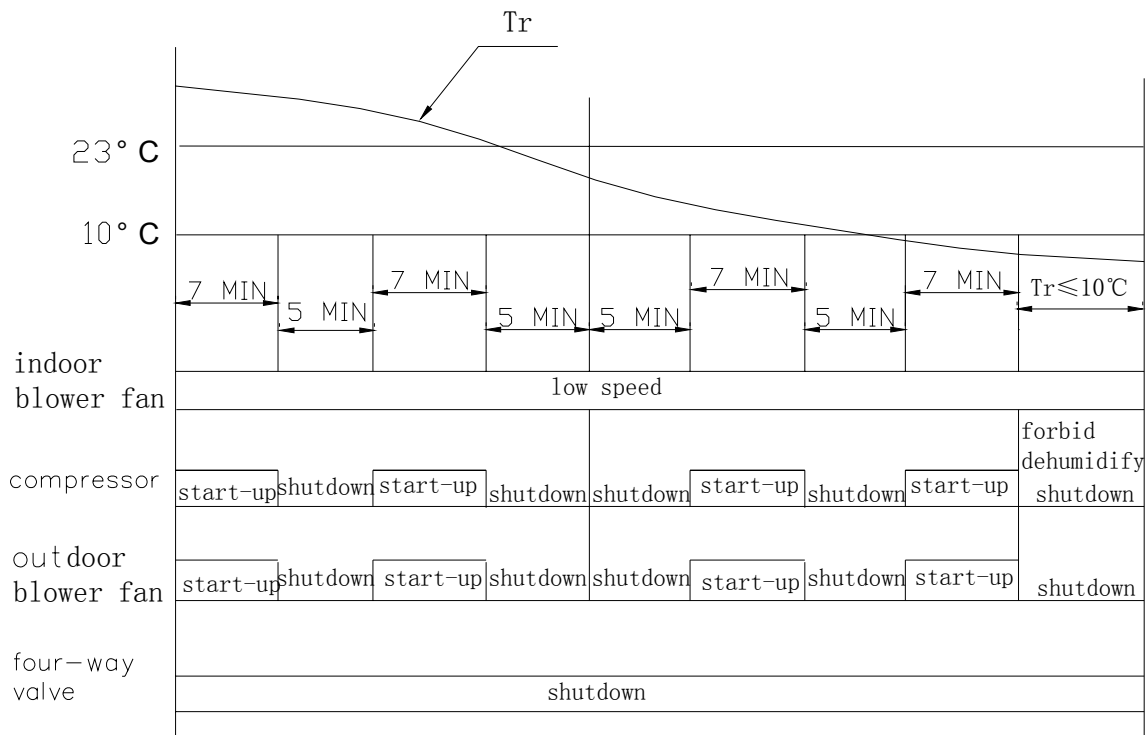


■ Sequence chart in defrosting mode



Dehumidification

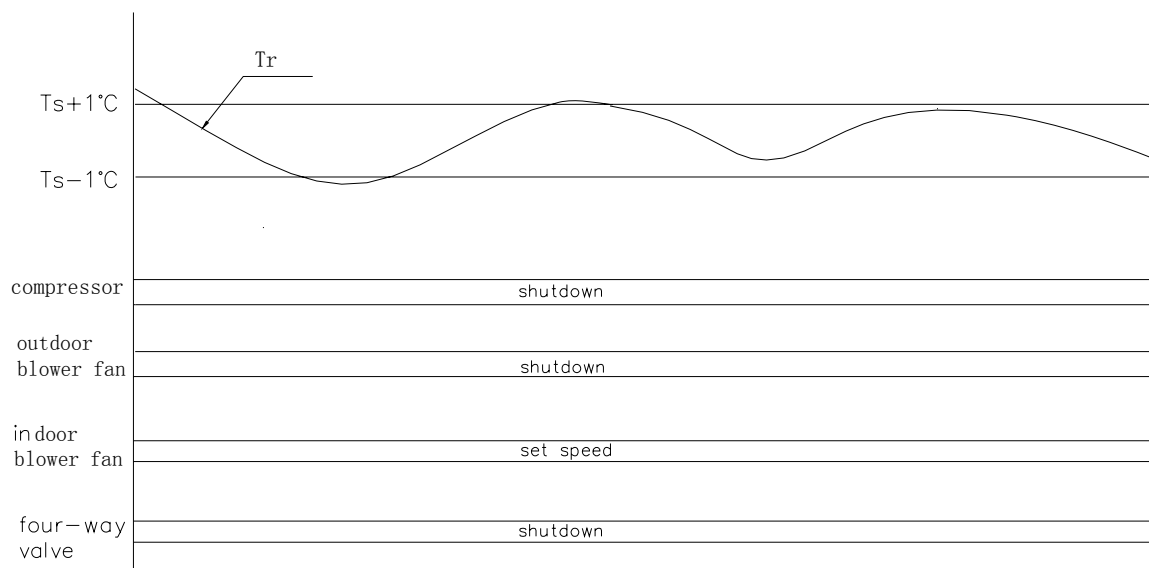
Dehumidification running is to eliminate the water vapor in the air by using the cool circulating capacity, but the dehumidification will not decrease the indoor temperature in great deal. The air conditioner automatically repeats on and off circulation according the room temperature, which is shown in the following figure.



- In the dehumidification mode, the indoor fan is running at the low speed for twenty seconds at first, then it select working mode.

Ventilation working mode (only applicable to single cooling unit)

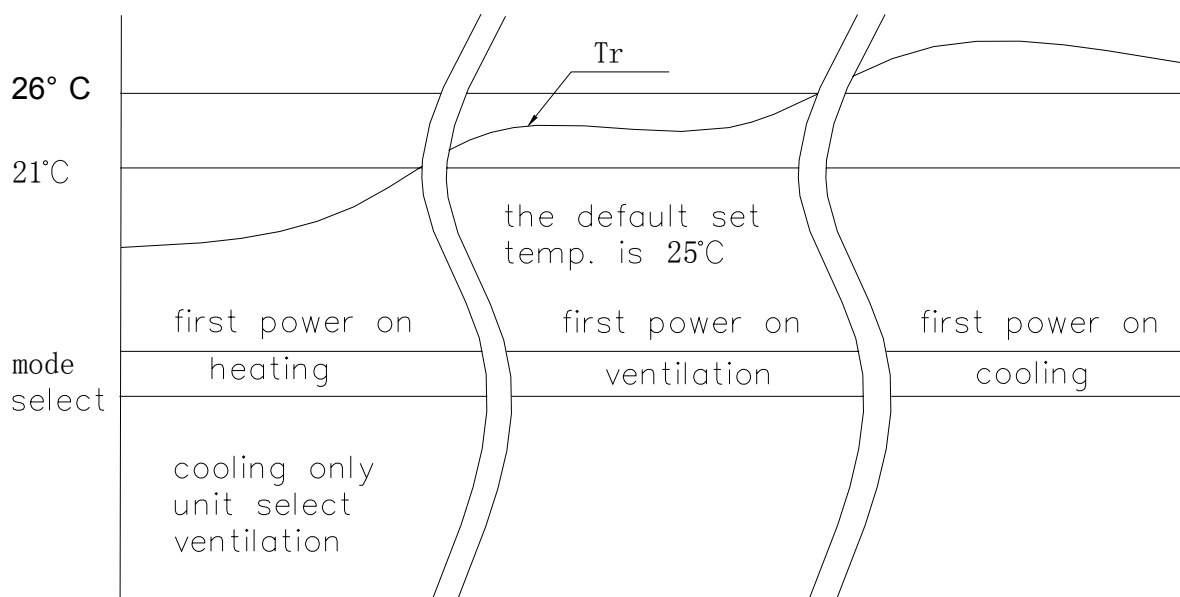
In the ventilation mode. When ventilating, the compressor, outdoor blower fan, four-way valve and electric heating are all closed and the indoor blower fan is running at the set speed.



Automatic mode

- Conditions for entering the automatic running mode are: After power-up for the first time, start up and select the automatic operating mode of remote or press emergency key, the working mode depends on Tr and if the working

mode had set , it doesn't change by Tr and the default set temperature is 25 °C.



auto mode select at first power on

Time on and time off

When the time on or time off is used, the clock of remote controller shall be corresponding to the current clock and the timing times is less than or equal to 24 hours, when the timing time is reached, unit will start-up or shutdown.

Sleep function

When the sleep key is press, air conditioner enter sleep state, indoor blower fan running at low speed, only sleep indication display.

Emergency key function

There is a forcible execution key on the panel of indoor units and the air conditioner can run by pressing the key when the remote control is out of work or missing.

When pressing down the forcible execution key, then power up and enter the self-check program.

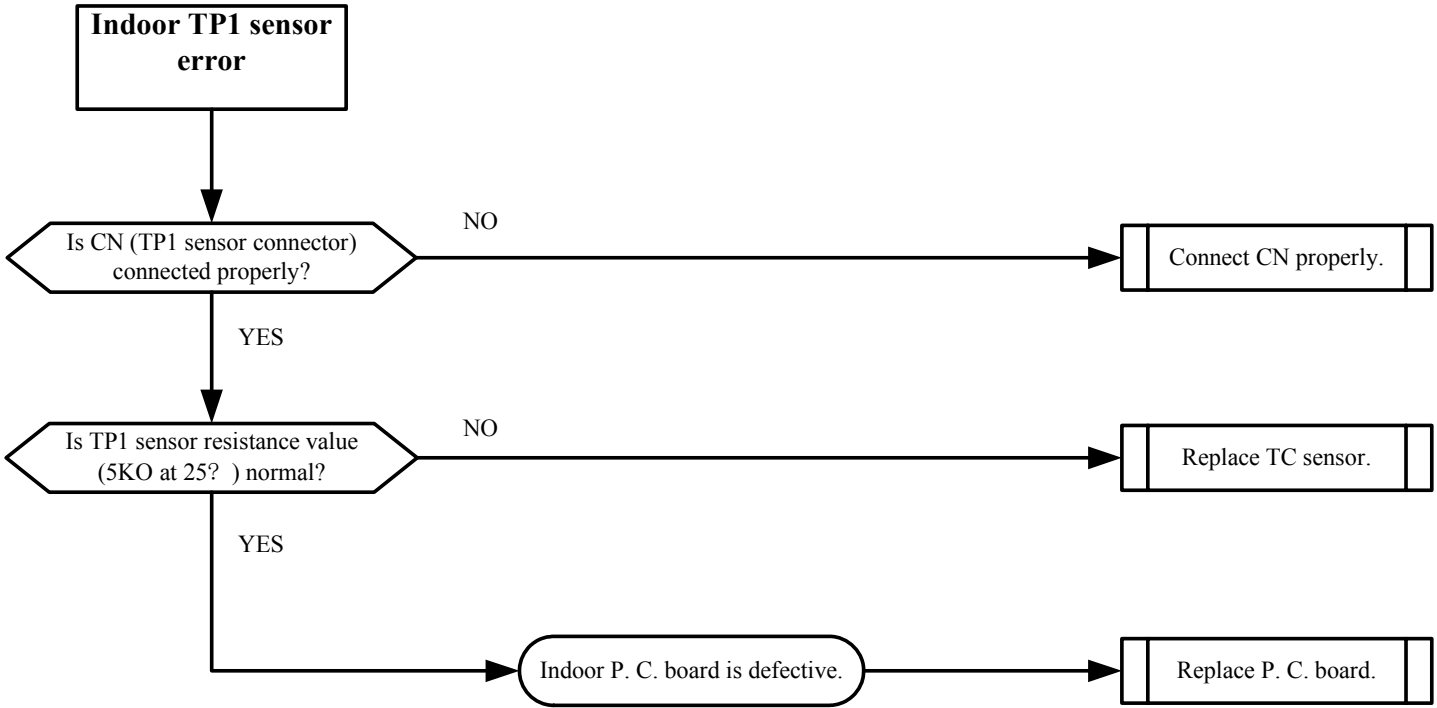
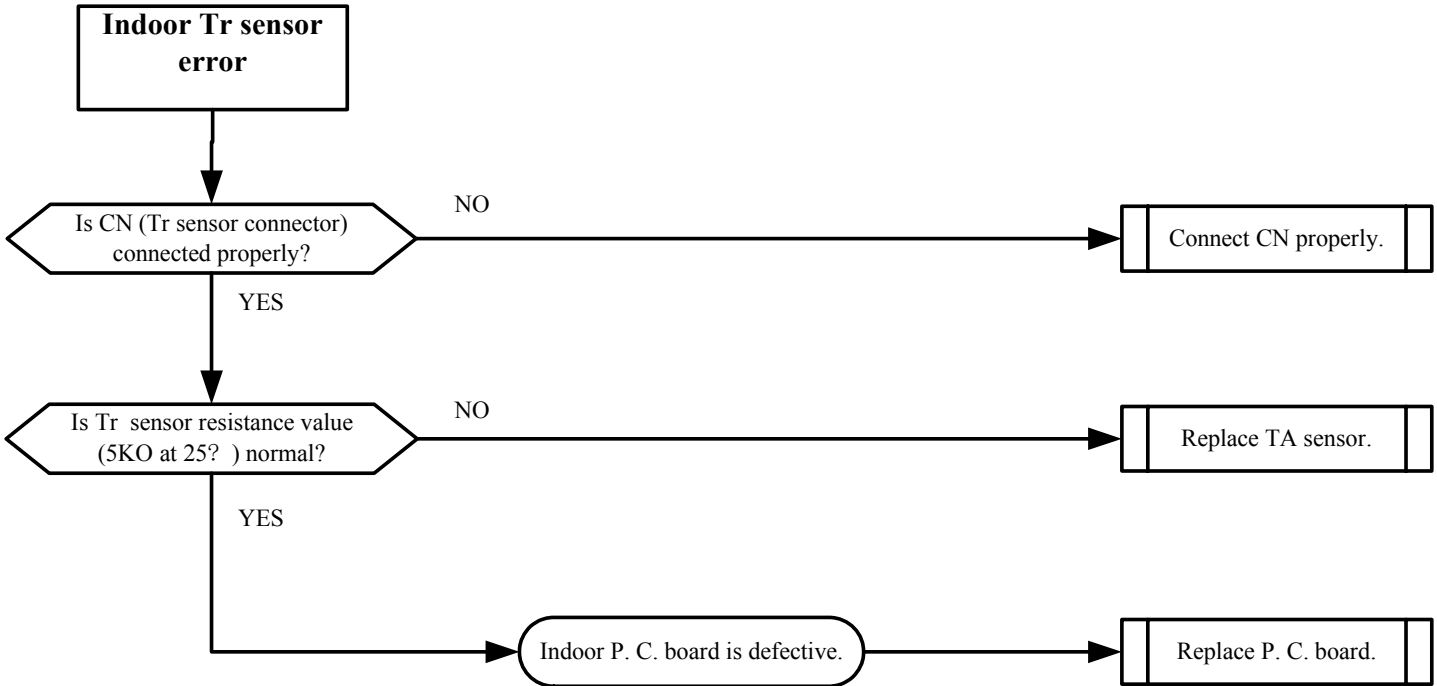
Failure display

LED		lamp display		failure	The reason of fault and solution
code	explain	code	explain		
DF	display at on state	flicker 1/1 SEC		defrost indication	Normal, the defrost state is removed, it will return to normal condition automatically
	display at off state	flicker 1/3 SEC		anti cold wind	1、 Normal (during heating mode) 2、 It will be removed when the coil pipe temperature sensor reaches certain temperature.
E2	display at	flicker 1/1	display	room temp.	1、 Check whether the resistance of the sensor is normal

	off state	SEC	at on/off state	sensor fault	<p>(the resistance is 5KΩ in the normal temperature 25℃), when it is abnormal the sensor should be replaced.</p> <p>2、Check whether there is short circuit or open circuit in the wire of the sensor, and whether the plug is connected well, whether there is welding off or rosin joint on the electric control board, if there is any, it should be repaired.</p> <p>3、 When the 1 and 2 are both normal, then the components or integrated circuit is damaged, the electric control board should be replaced.</p>
E3	display at off state	flicker 3/5 SEC	display at on/off state	coil temp. sensor fault	<p>1、 Check whether the resistance of the sensor is normal (the resistance is 5KΩ in the normal temperature 25℃), when it is abnormal the sensor should be replaced.</p> <p>2、Check whether there is short circuit or open circuit in the wire of the sensor, and whether the plug is connected well, whether there is welding off or rosin joint on the electric control board, if there is any, it should be repaired.</p> <p>3、 When the 1 and 2 are both normal, then the components or integrated circuit is damaged, the electric control board should be replaced.</p>
E4	display at on/off state	flicker 4/6 SEC	display at off state	outdoor unit abnormal	<p>1、 Check whether the winding resistance and operation current of the compressor are normal.</p> <p>2、 Check whether the high and low pressure is normal when the unit is running.</p> <p>3、 Check (whether the coil pipe sensor is normal) whether the contact of the inserter on the circuit board is well, the coil pipe temperature sensor is fixed, the evaporation of the indoor unit is well, the key is to check the evaporator temperature detected by the coil pipe temperature sensor has reached the cooling or heating temperature.</p> <p>4、 Check whether the surface of the condenser is too dirty, it should be cleaned when it is too dirty.</p> <p>5、 Check whether the capacitance of the outdoor motor and the fan is damaged, it should be replaced when it is damaged.</p> <p>6、 If the above items are normal, the electric control board should be replaced.</p>
E5	PG motor display at off state	flicker 5/7 SEC	display at off state	no feedback signal of indoor fan	<p>1、 Check whether two sets of plugs on the outlet end of the motor have loosed from the socket of the electric control board, insert it firmly when loosing.</p> <p>2、 Check whether the indoor motor has damaged, the motor should be replaced when it is damaged</p> <p>3、 Check whether the controllable silicon and other components on the electric control board have</p>

					damaged, replace the controllable silicon or electric control board when they are damaged.
E6	PG motor display at off state	flicker 6/8 SEC	display at off state	no over zero signal	<ol style="list-style-type: none"> 1、 Firstly check whether the indoor fan is normal. 2、 Check whether the signal outputting from the integrated chip of the electric control board is normal, the electric control board should be replaced when the signal is abnormal.
E7	display at off state	flicker 7/9 SEC	display at off state	outdoor feedback fault	<ol style="list-style-type: none"> 1、 Check whether the winding resistance and operation current of the compressor are normal 2、 Check whether the high and low pressure is normal when the unit is running. 3、 Check whether the indoor and outdoor wiring is right; when it is wrong, connect them again according to the circuit diagram 4、 Check whether the contact of the inserter on the circuit board and the connection are well, otherwise repair. 5、 Check whether the signal feedback wire is disconnected, replace or connect the feedback signal wire. 6、 Check whether the supply power is phase-lacking or phase opposition. 7、 Check whether the AC electromagnetic contactor is well.
E8	display at off state	flicker 8/10 SEC	display at off state	frost protection/over heat protection	<ol style="list-style-type: none"> 1、 Check whether the filter of the indoor unit is dirty or blocked, and clean if it is dirty. 2、 Check whether the indoor fan is running normally, and replace the motor if it is abnormal. 3、 Check whether indoor pipe temperature sensor is normal, and replace the sensor if it is abnormal. 4、 Check whether the system pressure is normal, if abnormal, should check whether there is leakage, and fill the refrigerant again.

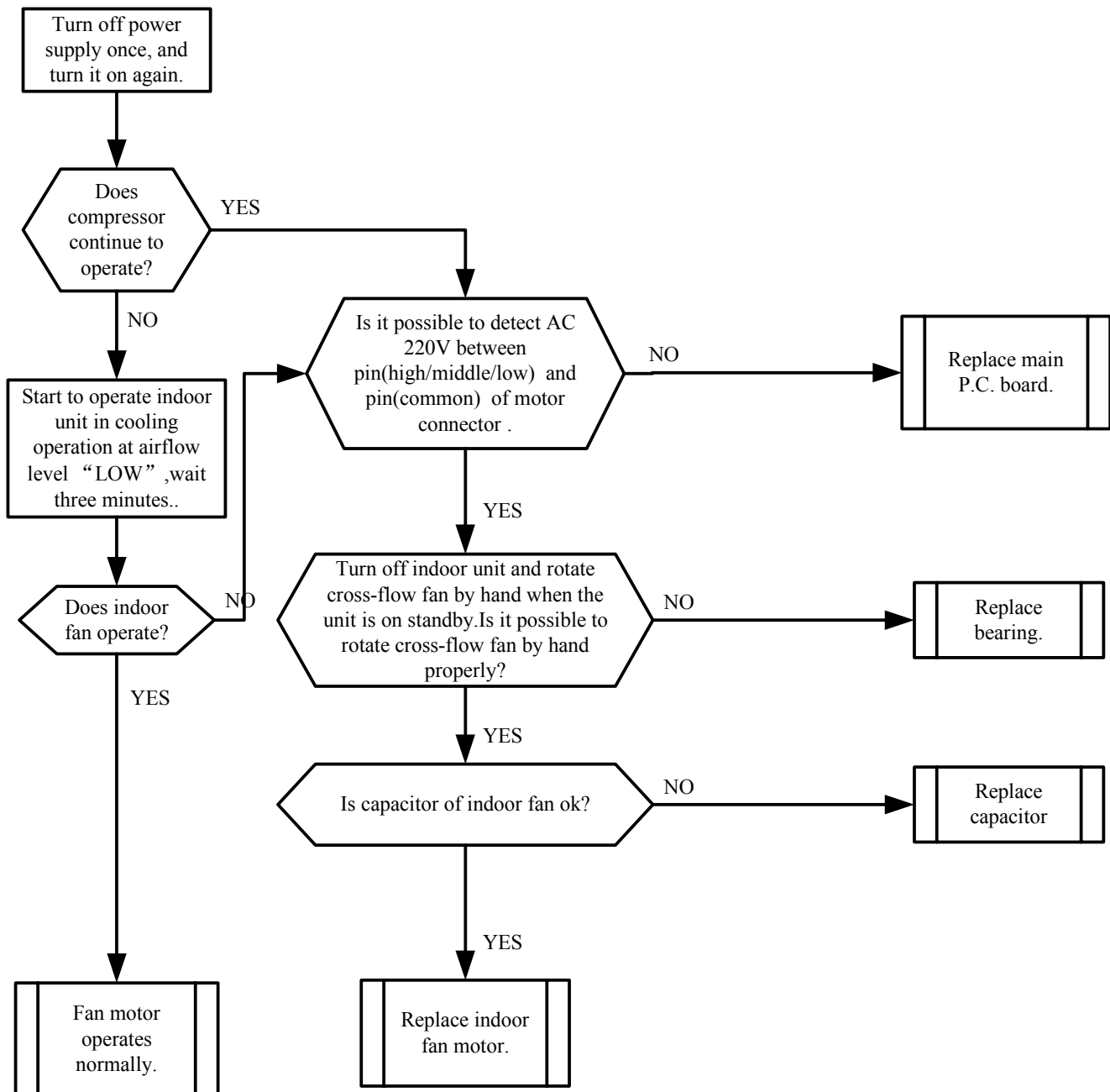
10. TROUBLE SHOOTING



Only indoor fan motor does not operate.

<Primary check>

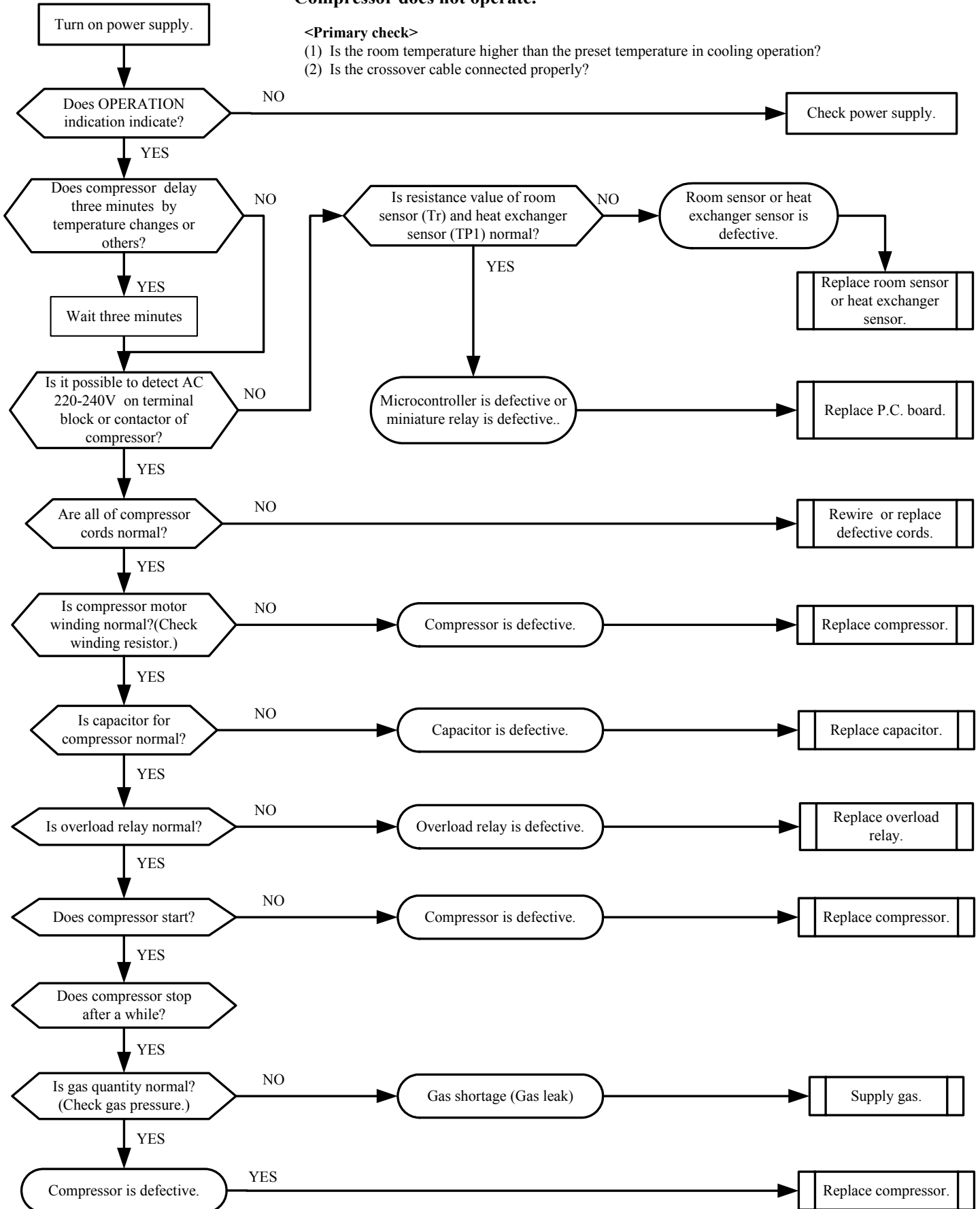
- (1) Is it possible to detect the power supply voltage (200-240V) between L and N on the terminal block?
- (2) Does the indoor fan motor operate in cooling operation?

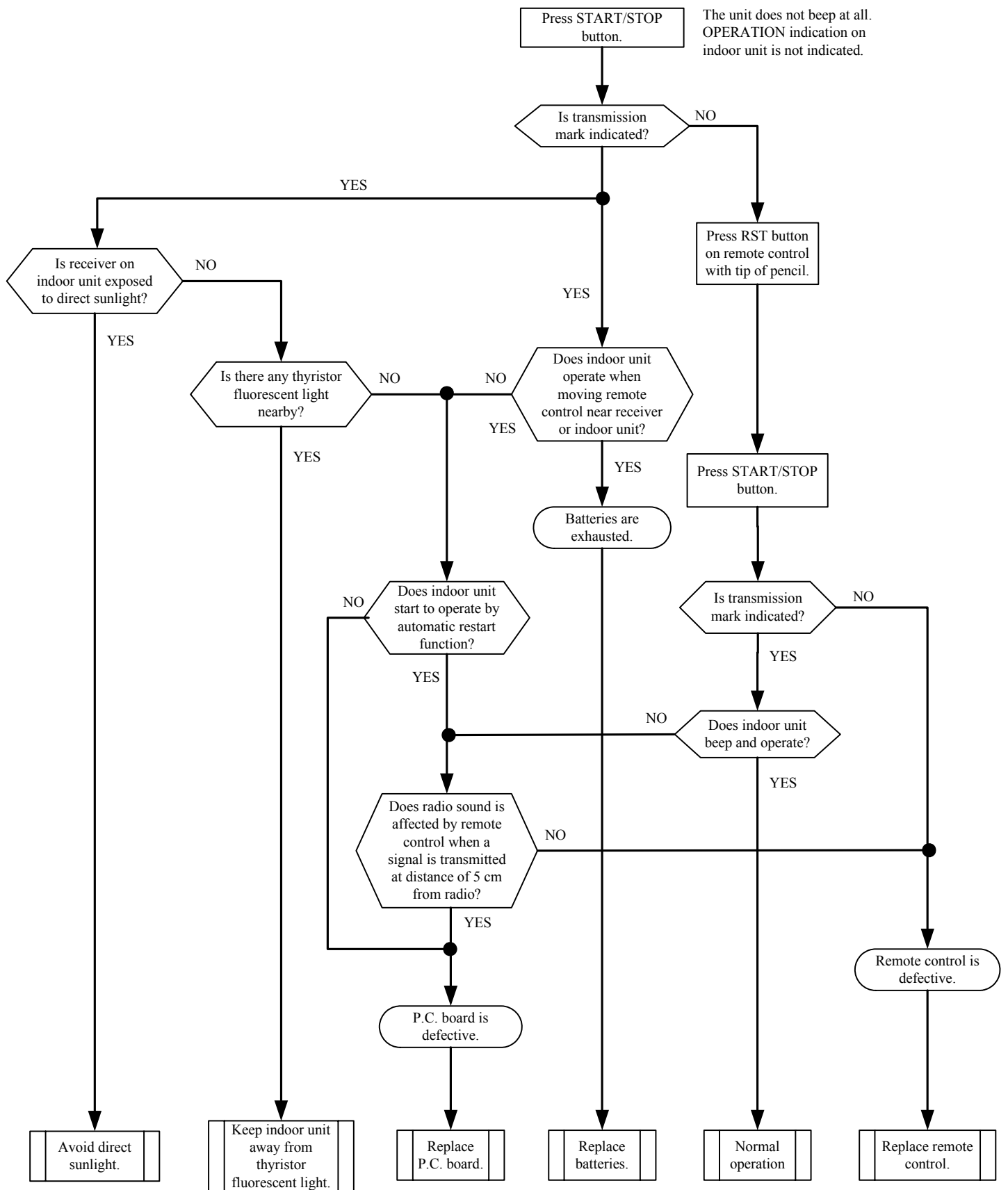


Compressor does not operate.

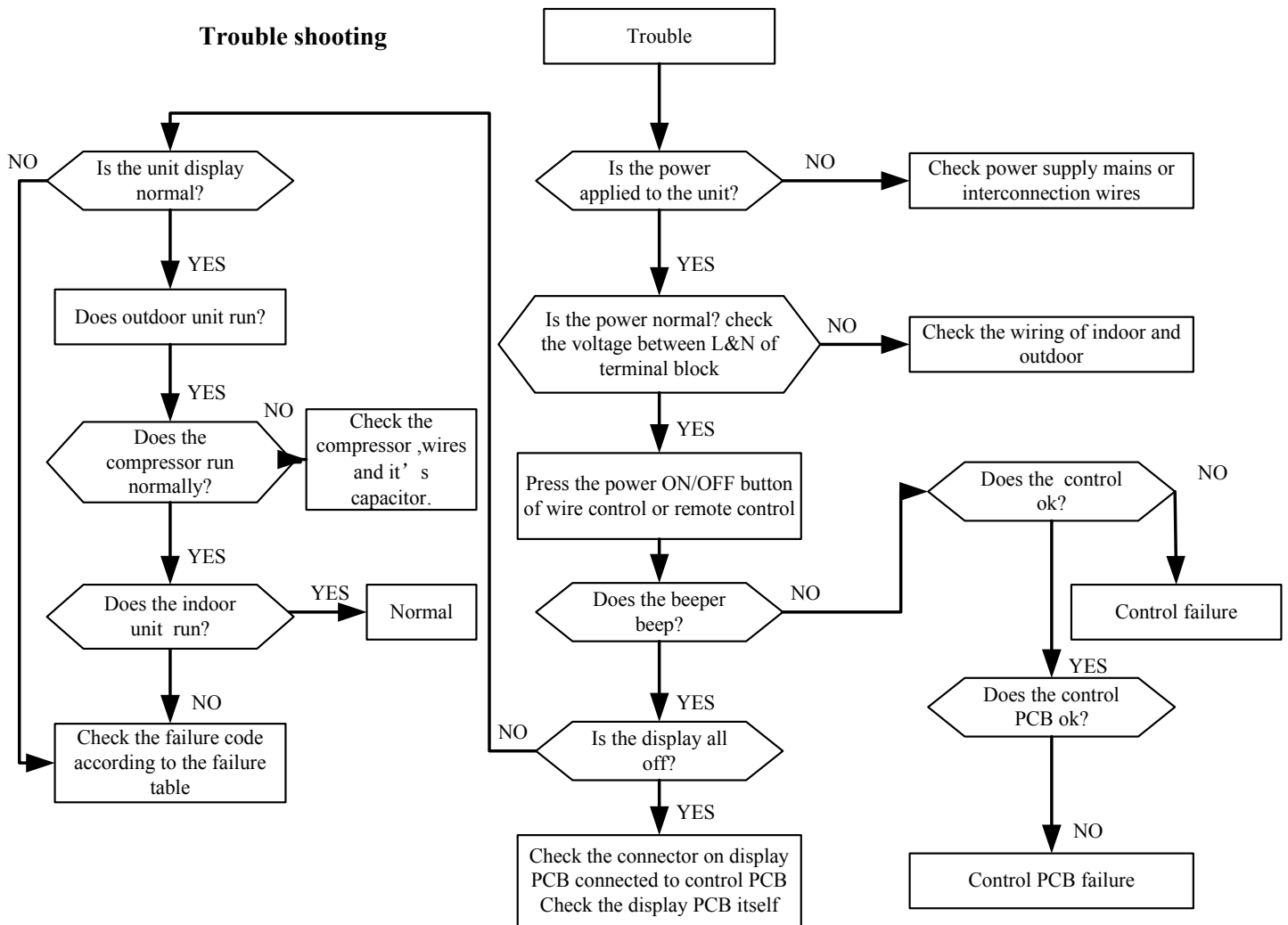
<Primary check>

- (1) Is the room temperature higher than the preset temperature in cooling operation?
- (2) Is the crossover cable connected properly?





Trouble shooting



Indoor unit and outdoor unit don' t operate

